ORIGINAL ARTICLE

INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation Journal Home Page: https://ijrps.com

Prevalence of TMD in patients visiting private dental institution - A retrospective study

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Article History:

Received on: 26 Jul 2020
Revised on: 18 aug 2020
Accepted on: 17 Sep 2020

Keywords:

Clicking sound,
pain,
RDC criteria,
restricted mouth opening,
TMD

ABSTRACT

Temporomandibular disorder is a collective term for a group of musculoskeletal and neuromuscular conditions. Patients will complain of pain in the TMJ region and the fatigue of the Cranio cervico facial muscles. The aim of the study was to assess the prevalence of TMD in patients visiting a private dental college. This was a retrospective study. Samples were collected from June 2019 to March 2020. The sample size was 55 patients. Data of Temporomandibular disorders were collected. Excel tabulation was done. Chi-Square test was performed and results were obtained using SPSS software. Out of 55 patients, the prevalence of group I of RDC criteria was 34.5%, prevalence of group II of RDC criteria was 62% and the prevalence of group III of RDC criteria was 3.5%. From the present study, it can be concluded that the prevalence of TMD in patients visiting a private dental College was very less. Group II of our RDC criteria was found to be high, with a percentage of 62%.

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ISSN: 0975-7538

DOI: https://doi.org/10.26452/ijrps.v11iSPL3.3052

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INTRODUCTION

Temporomandibular disorder is a collective term for a group of musculoskeletal and neuromuscular conditions that include several clinical signs and symptoms such as pain, headache, TMJ sounds, TMJ locking and ear pain (Okeson, 2014). It involves the muscles of mastication, TMJ and associated structures (Motghare, 2015). TMD affects the articulation of the condyle with glenoid fossa, The masticatory muscles And occlusion. TMD can be due to the result of trauma, stress, gum chewing, hard food eating habits, bruxism and long dental appointments. When is usually experienced in the masseter muscle, preauricular area and anterior temporalis muscle regions (Wright and North, 2009). The pain may be dull, poorly localised and unilateral or bilateral (Dhir, 2016). There may be episodes of sharp pain and when the pain worsens, the primary pain quality may become a throbbing sensation. Clicking sound is also an important symptom of TMD. Clicking sounds will be heard when the patients close and open their mouth. Another important sign and symptom of TMD is restricted mouth opening. The maximum mouth opening distance is the generally accepted measurement to estimate temporomandibular joint mobility and function (Walker *et al.*, 2000). Mouth opening can be measured using gauges or callipers, and while the

normal range differs between populations, the critical functional opening is 35 to 40 mm. RDC criteria is an important feature in TMD. There are three groups in RDC criteria. Group I is myofascial pain dysfunction syndrome (Dharman and Muthukrishnan, 2016; Muthukrishnan *et al.*, 2016; Muthukrishnan and Kumar, 2017).

Group II is disc disorders or internal derangement and group III is osteoarthritis. Many therapies have been advocated for treating TMD and many health professionals have found that they are able to help patients to improve TMD symptoms. Therapies can be broadly classified as conservative or non-surgical and surgical management. Pain can be relieved by relaxing by applying heat or cold to the painful area. Occlusal splints can be fabricated to stop the patient's habit of clenching. Analgesics and muscle relaxants can be prescribed to reduce the pain and to increase the muscular movement. Surgical therapy for TMD is very rare. Some surgical procedures that are done for TMD are arthrocentesis, arthroscopy and open joint procedures. The frequency to seek treatment increases if the symptoms interfere with the day to day activities. Identification of the signs of a possible TMD is essential for diagnosis. Previously our team had conducted numerous case studies (Choudhury and Panigrahi, 2015; Misra *et al.*, 2015) and systematic reviews (Venugopal and Maheswari, 2016; Chaitanya, 2017; Chaitanya *et al.*, 2018; Maheswari *et al.*, 2018) and questionnaire-based studies (Subashri and Maheshwari, 2016; Warnakulasuriya and Muthukrishnan, 2018) and international validation study (Steele *et al.*, 2015) and radiographic studies (Rohini and Kumar, 2017; Patil *et al.*, 2018; Subha and Arvind, 2019) over the past 5 years. Now we are focussing on epidemiological surveys. So this study was carried out to determine the problems of TMD in patients visiting a private dental college based on RDC criteria.

MATERIALS AND METHODS

This was a retrospective study. The study setting was a university setting. Ethical approval was obtained. Samples were collected from June 2019 to March 2020. Cases of 55 patients were reviewed. Sampling bias was minimised by including all TMD cases and removing all duplicate data. Data of TMD was collected by reviewing case sheets of 86,000 patients. Excel tabulation was done. SPSS importing was done. Incomplete data were excluded from the study. SPSS software version 20 was used to perform the Chi-Square test and Descriptive statistical test. Prevalence of RDC criteria, TMD clinical triad and therapies of TMD in different age groups and gender was analysed using Descriptive statistical tests. Association of sides of involvement with respect to age groups and gender was analysed using the Chi-square test. Independent variables were age, gender, occlusal disharmony, dysfunctional habits. The dependent variable was TMD.

RESULTS AND DISCUSSION

Figure 1: Bar chart depicts the prevalence of RDC criteria in gender

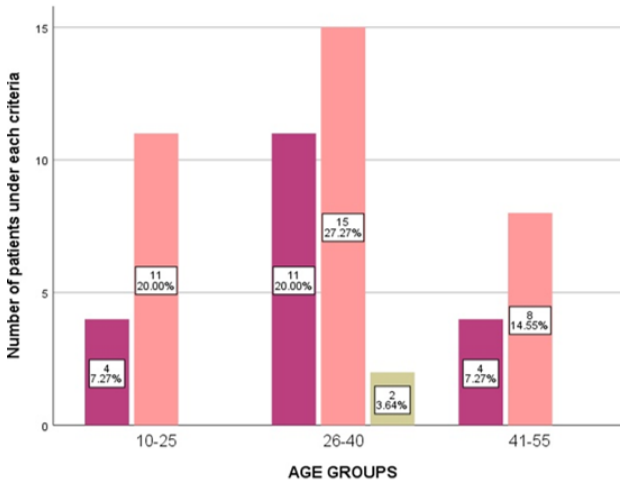

Figure 2: Bar chart depicts the prevalence of RDC criteria in different age groups

In the present study, Figure 1 showed that Group II of RDC criteria was seen equally in both the genders. X axis denotes gender. Y axis denotes the number of patients under each criteria. (Pearson chi square test, p value- 0.293; (>0.05) hence statistically not significant).Group II of RDC criteria was found to be more prevalent among male and female patients, but there wasn't any statistically significant difference between both the genders. Group I of RDC criteria was seen more in males with a percentage of 20%. Group III of RDC criteria was seen only in females

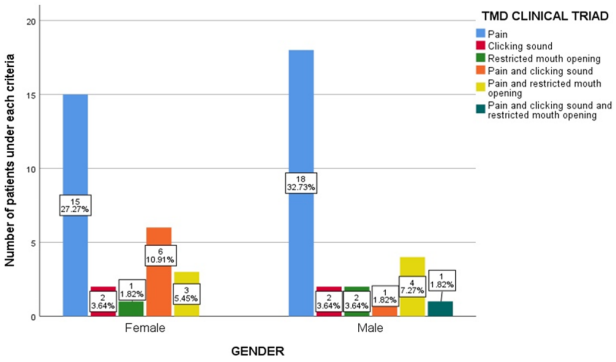

Figure 3: Bar chart depicts the prevalence of TMD clinical triad in gender

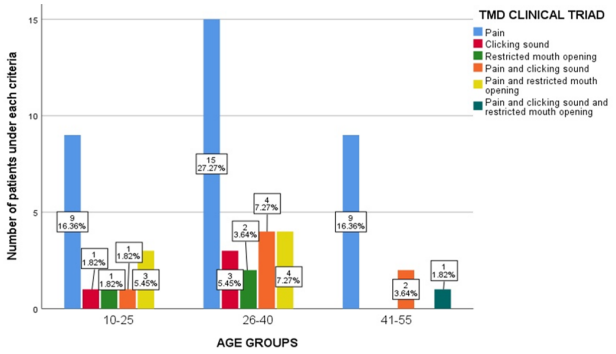

Figure 4: Bar chart depicts the prevalence of TMD clinical triad in different age groups

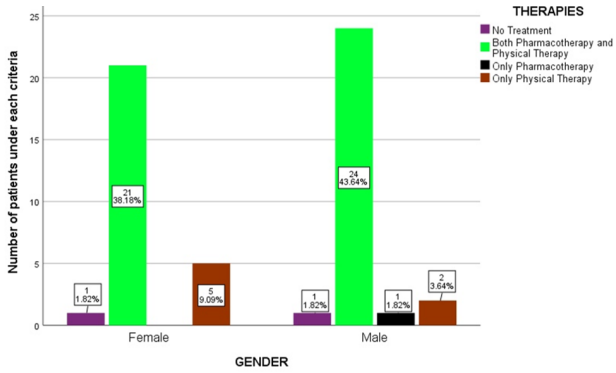

Figure 5: Bar chart depicts the prevalence of therapies in gender

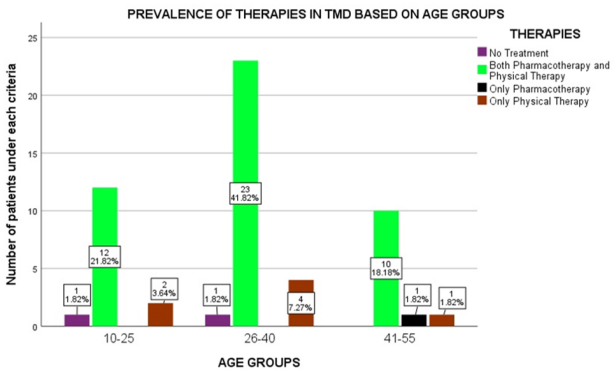

Figure 6: Bar chart depicts the prevalence of therapies in different age groups

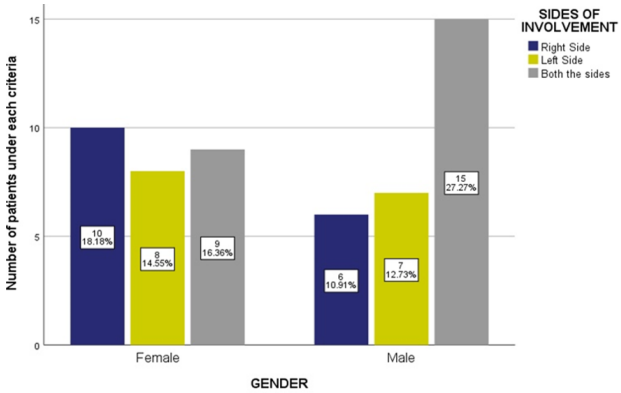

Figure 7: Bar chart depicts the prevalence of sides of involvement in gender

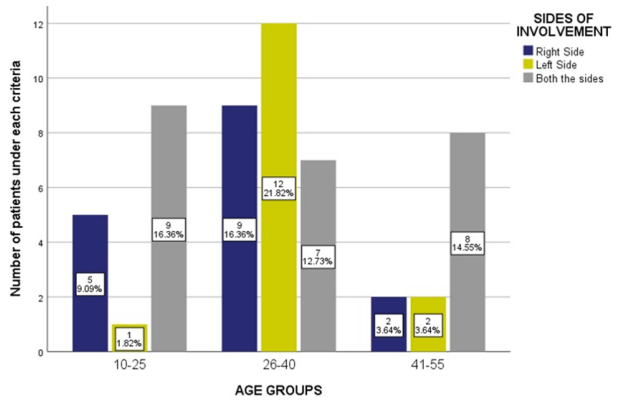

Figure 8: Bar chart depicts the prevalence of sides of involvement in different age groups. X-axis denotes age groups.

with a percentage of 3.64%. Group II of RDC criteria was found to be more prevalent among male and female patients. The results were similar to the study done by Muthukrishnan et al. (Muthukrishnan and Sekar, 2015), where females exhibited a higher prevalence of osteoarthritis [Group III]. In the study done by Agerberg et al. (Agerberg and Bergenholtz, 1989), Group II of RDC criteria was more prevalent.

Figure 2 showed that Group II of RDC criteria was seen more among all the age groups but predominantly in the age group of 26-40 years. X axis denotes age groups. Y axis denotes the number of patients under each criteria. (Pearson chi square test, p value- 0.548; (>0.05) hence statistically not significant).Group II criteria were found to be more prevalent in the 20-60 years age group, but the results did not show any statistically significant difference among various age groups. Group I of RDC criteria was seen more in the age group of 26-40 years with a percentage of 20%. Group III of RDC criteria was seen only in the age group of 26-40 years, with the percentage of 3.64%. In the study done by Muthukrishnan et al. (Muthukrishnan and Sekar, 2015), MPDS and internal derangement were more

prevalent between the age group of 18 to 30 years. Osteoarthritis was seen in patients above the age of 50 years.

Figure 3 showed that pain was more prevalent in both male and female patients. X axis denotes gender. Y axis denotes the number of patients under each criteria. (Pearson chi square test, p value- 0.380; (>0.05) hence statistically not significant). Among all the factors considered in the clinical triad, the pain was the most experienced symptom in male patients with TMD, but the results did not show any statistically significant difference among both genders.Clicking sound was seen equally in both the genders with the percentage of 3.64%. Restricted mouth opening was seen more in male patients with the percentage of 3.64%. Pain and clicking sound was seen more in female patients with the percentage of 10.91%. Pain and restricted mouth opening was seen more in male patients with the percentage of 7.27%. Pain and clicking sound and restricted mouth opening were seen in only one male patient. In the study done by Agerberg et al. (Agerberg and Bergenholtz, 1989) , clicking sound was seen more in both male and female patients. It was similar to our study. In the study done by Gesch et al. (Gesch *et al.*, 2004), It was reported that restricted mouth opening was seen more in female patients. In the study done by Shivhare et al. (Shivhare, 2019), Clicking sound and restricted mouth opening were more prevalent. In the study done by Agarwal et al. (Agarwal *et al.*, 2016), clicking sound was the most common symptom. In the study done by Al-khotani et al. (Al-Khotani *et al.*, 2016), Clicking sound was more prevalent and females showed more symptoms than males.

Figure 4 showed that pain was the most common symptom among all the age groups. X axis denotes age groups. Y axis denotes the number of patients under each criteria.(Pearson chi square test, p value- 0.509; (>0.05) hence statistically not significant). Pain was the most elicited symptom in the age group of 26-40 years, but the results did not show any statistically significant difference among various age groups. Clicking sound was seen more in the age group of 26-40 years with the percentage of 5.45%. Restricted mouth opening, pain and clicking sound, pain and restricted mouth opening was seen more in the age group of 26-40 years. Pain and clicking sound and restricted mouth opening was seen in the age group of 41-55 years. In the study done by Muthukrishnan et al. (Muthukrishnan and Sekar, 2015), Clicking sound was more prevalent between the age group of 31 to 45 years. In the study done by Gesch et al. (Gesch *et al.*, 2004), restricted mouth opening was seen among the age group of 40 to 59 years. In the study done by Tervonen et al. (Tervonen and Knuuttila, 1988) and Salonen et al. (Salonen *et al.*, 1990), there was no significant difference between gender and age groups in the TMD clinical triad.

Figure 5 showed that the combination of pharmacotherapy and physical therapy was the most commonly preferred treatment for TMD in both male and female patients. X axis denotes gender. Y axis denotes the number of patients under each criteria (Pearson chi square test, p value- 0.481;(>0.05) hence statistically not significant). The combination of pharmacotherapy and physical therapy was the most commonly preferred treatment for TMD in both male and female patients, but the results were not statistically significant. Pharmacotherapy was preferred in only one male patient. Physical therapy was preferred more in female patients, with a percentage of 9.09%.

Figure 6 showed that the combination of pharmacotherapy and physical therapy was the most commonly preferred treatment for TMD among all the age groups. X axis denotes age groups. Y axis denotes the number of patients under each criteria. (Pearson chi square test, p value- 0.590; (>0.05) hence statistically not significant). The combination of pharmacotherapy and physical therapy was the most commonly preferred treatment for TMD among all the age groups, but the results were not statistically significant. Pharmacotherapy was preferred for only one patient in the age group of 41-55 years. Physical therapy was preferred more in the age group of 26-40 years. Surgical therapy was not performed for any of the patients in this study. In the study done by Brown et al. (Brown and Gaudet, 2002), 2.5% of patients underwent TMJ surgery [1.4% arthrocentesis, 1.0% arthroscopy and 0.1% open joint procedures].

Figure 7 showed that the female patients reported more with symptoms on only the right side of TMJ with the percentage of 18.18% while male patients reported more with symptoms on both sides of TMJ with the percentage of 27.27%. X-axis denotes gender. Y-axis denotes the number of patients under each criteria. (Pearson chi square test, p value- 0.280;(>0.05) hence statistically not significant). No significant association was noted between the sides of involvement between both the gender.

Figure 8 showed that the symptoms on only one side of TMJ were seen more between the age group of 26 to 40 years while symptoms on both sides of TMJ was seen more between the age group of 10 to 25 years with the percentage of 16.36%. X-axis denotes age groups. Y-axis denotes the num-

ber of patients under each criteria. (Pearson chi square test, p value- 0.579; (>0.05) hence statistically not significant).No significant association was noted between the sides of involvement among different age groups. In the study done by Habib et al. (Habib *et al.*, 2015), The symptoms were seen mostly on only one side of TMJ.

The findings from the present study add to the consensus of the previous study. The limitation of the study was a smaller sample size, so it was not possible to provide results of the entire population. Future studies can be performed with larger sample size. Other factors, like post-treatment reviews and pain assessment scales, can be analysed.

CONCLUSION

From the present study, we can conclude that the prevalence of TMD in patients visiting a private dental institution was comparatively less. Group II of RDC criteria was found to be higher than the other two groups. The pain was the most common symptom reported among all the age groups in both male and female patients. The combination of pharmacotherapy and physical therapy was the most commonly preferred treatment for TMD irrespective of age and gender. The female patients reported more with symptoms on only the right side of TMJ while male patients reported more with symptoms on both sides of TMJ.

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.

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