



**Research Article**

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## Assessment of Knowledge, Attitude and Practice on Temporomandibular Joint Disorders Among Postgraduate Dental Students

Ashwin P S.<sup>1</sup>, Siri. P. B.<sup>2</sup>

<sup>1</sup> Sushravya House, P O Kodangai, Bantwal T.Q, Dakshina Kannada (DK) district, Karnataka, India

<sup>2</sup> Benaka, Bangrakulur, Mangalore, Karnataka, India

### Abstract

**Aims and objectives:** To assess the knowledge, attitude and practice on temporomandibular joint disorders among post graduate dental students of Karnataka. **Study design:** A total of 75 post graduate dental students belonging to department of Oral Medicine and Radiology, Orthodontics and Dentofacial Orthopaedics, Prosthodontics and Oral and Maxillofacial surgery of various dental colleges of Karnataka were included in this study. The questionnaire was pretested for validation and distributed online through e-mails and other online portals. **Statistical analysis used:** Descriptive statistics were used in analysing the data. **Results:** Attitude on management of temporomandibular joint disorders varied among the subjects from different specialities. It was noted from the responses that the current curriculum provides minimal knowledge on diagnosing and management at graduation level. Majority of the respondents have expressed that they have only a little confidence in managing temporomandibular joint disorders. **Conclusions:** Temporomandibular joint disorders are prevalent in day today life and often are overlooked due to lack of clinical skills in diagnosing and appropriate management. This indicates the need of imparting education that provides in depth knowledge and skills for diagnosing and managing temporomandibular joint disorders in clinical practice.

**Keywords:** Dental Students, Attitude and practice survey, Temporomandibular joint disorders, Masticatory muscle pain.

### INTRODUCTION

Temporomandibular disorders (TMD) pose clinical problems which involves the masticatory muscles, temporomandibular joint and associated structures.<sup>[1]</sup> which leads to considerable socioeconomic costs as a result of frequent absences from work, medical and surgical treatments.<sup>[2,3]</sup>

Among the non dental orofacial pain, TMDs have been recognised to be the common cause, which is commonly being confronted by the health care professionals. It is the most challenging disease of modern society in terms of diagnosis, treatment and prognosis.<sup>[4]</sup>

TMDs are said to be multifactorial which can be due to muscle hyperfunction or parafunction, traumatic injuries, hormonal influences, and articular changes within the joint. Several studies have found correlations between occlusion and TMJ symptoms.<sup>[5]</sup>

Proper history and physical examination are crucial in diagnosis of TMDs. Pain and limited ranges of motion are usual symptoms of TMJ dysfunction. Radiographic investigations serve as supplemental diagnostic tools. A clinician must wisely utilise patients' clinical presentation, signs, and symptoms along with TMJ imaging for the treatment plan.

Multidisciplinary approach involving general dentistry, oral medicine and radiology orthodontics, oral surgery, physical therapy and psychiatry may be necessary to address the patients need from all angles. The knowledge, attitude and experience of the dental practitioners influence the diagnoses and management. This study aims to assess the knowledge, attitude and practice of post graduate dental students of those branches of dentistry that are specialised for diagnosis and management of TMDs, as they are the future TMD expertise dental practitioners of the society.

**\*Corresponding author:**

**Dr. Ashwin P S**  
Sushravya House, P O  
Kodangai, Bantwal T.Q, D.K  
District  
Email:  
psbhatashwin@gmail.com

**MATERIALS AND METHODS**

A total of 75 post graduate dental students belonging to branches of dentistry that deals with diagnosis and treatment of temporomandibular joint disorders, i.e., Oral Medicine and Radiology, Orthodontics and Dentofacial Orthopaedics, Prosthodontics and Oral and Maxillofacial Surgery of various dental colleges of Karnataka participated in this survey.

The questionnaire was adopted from a similar study by Patil et al, and modified according to the need of this study.<sup>[6]</sup> It consisted of 4 major sections, i.e., Demographics, Knowledge, Attitude and Practice. The knowledge section contained questions of epidemiology, aetiology, signs and symptoms and level of knowledge provided in undergraduate syllabus. The scoring for knowledge section was done as follows. The scoring pattern was +1 for every correct answer, - 1 for wrong answer and 0 for unanswered questions. The survey subjects were classified as having low, fair, good or high level of knowledge based on their total score as follows:

- Score of 1-6: Low
- Score of 7-12: Fair
- Score of 13-18: Good
- Score of 19 and above: High

Attitude section comprised of agree/ disagree type of questions. The practice section comprised of questions on management of temporomandibular disorders. The questionnaire was tested for validation and queries of participants were addressed. The post graduate students from different dental colleges of Karnataka were invited to take part in the survey and the questionnaire was distributed

to the participants through Google Form, online portal. The data were compiled in Microsoft Excel. The responses were analysed using SPSS V. 20. Software and descriptive statistics were calculated.

**RESULTS**

Among the 75 participants, 44 % (n=33) of them were from the branch of Orthodontics and dentofacial orthopaedics, 26.7% (n=20) were from Prosthodontics, 17.3% (n=13) were from Oral and maxillofacial surgery and 12% (n=9) were from Oral Medicine and Radiology. It was noted that majority of the participants, i.e., 40% (n=30) were pursuing their second year of post-graduation, followed by 38.7 % (n=29) were pursuing first year of post-graduation and the rest 21.3% (n=16) belonged to final year of their post-graduation course.

**Knowledge section:**

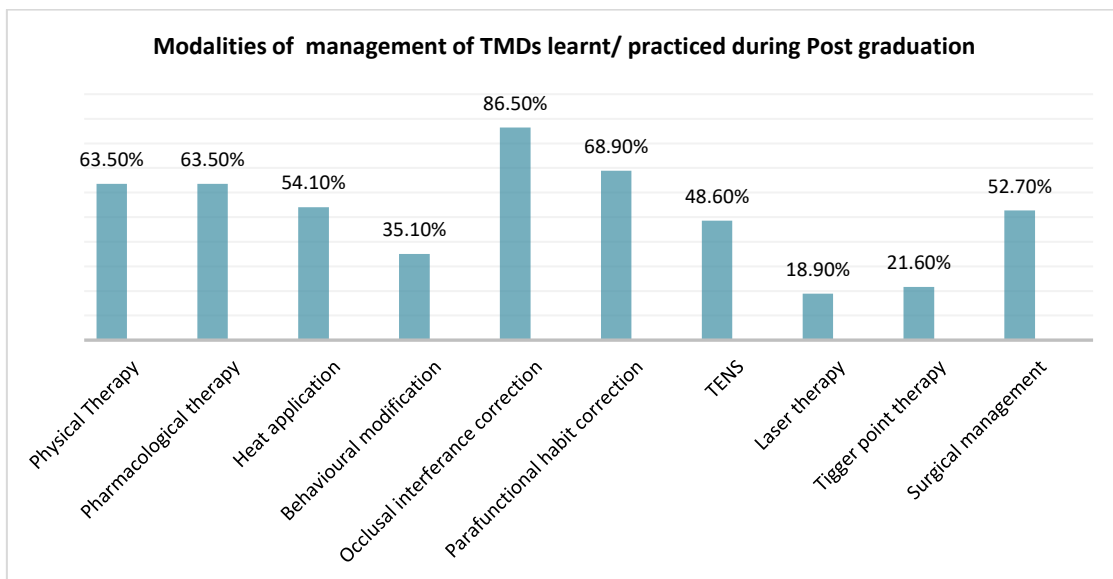
The assessment of knowledge among the participants revealed that 24 % (n=18) had low level of knowledge, 20 % (n=15) had fair level of knowledge, 44% (n=33) had good level of knowledge and only 12 % (n=9) has high level of knowledge. It was noted that 54.6 % (n=41) of the participants were not aware of Research Diagnostic Criteria (RDC) of temporomandibular joint disorders. 56% of the participants reported that 'Little or no base (information only)' level of assessment knowledge on temporomandibular joint disorders is being provided during the under- graduation course.

**Attitude Section:**

It comprised of 5 agree/ disagree type of statements. The response of the participants are summarised in Table 1.

**Table 1:** Responses for Attitude Section

Statement	Agree	Disagree
Identification and removal of occlusal interferences is effective in the management of TMD	92 % (n=69)	8 % (n=6)
Orthodontic treatment can be initiated in patients with TMD	72 % (n= 54)	28 % (n=21)
Relaxation training is an effective technique in the management of myofascial pain	97.3 % (n= 73)	2.7 % (n=2)
All individuals with joint sounds do not require treatment	81.3 % (n=61)	18.7 % (n=14)
All subjects with TMDs need not undergo radiographic evaluation before formulation of treatment	36 % (n=27)	64 % (n=48)



**Figure 1:** Modalities of management of TMDs learnt/ practiced during Post graduation

## Practice Section:

For the question on confidence in diagnosing, making therapeutic decisions and assessing the outcomes of treatment of temporomandibular joint disorders, 66.7 % (n= 50) of the participants reported to have little confidence, 17.3 % (n=13) reported to have full confidence while 16% (n= 12) participants reported to have no confidence. 62.7 % (n=47) of the participants said that they provide therapeutic management to individuals with temporomandibular joint disorders in their post- graduation course. 96% (n= 72) of the participants feel that there is a need of expertise in diagnosing and managing temporomandibular joint disorders.

The response on treatment modalities learnt or practiced during post-graduation course in managing temporomandibular joint disorders is summarised as in Figure 1.

## DISCUSSION

Through the present study it is clear that majority of the participants have good (44%, n= 33) / high level (12%, n=9) of theoretical knowledge on temporomandibular joint disorders. It is noted that this study stands unique to have assessed the postgraduate students of dental specialities that deals with temporomandibular disorders. A similar study was previously conducted among general dental practitioners (GDPs) and temporomandibular joint disorders experts (TMDs experts), i.e., practitioners from the branch of Orthodontics, Oral and Maxillofacial Surgery, Oral Medicine and Radiology and Prosthodontics. It was observed that most of the experts had a good level of knowledge, while GDPs had low/fair level of knowledge regarding TMDs.<sup>[6]</sup>

Also, Resche et al has reported that among GDPs knowledge level is low regarding pathophysiology, diagnosis and treatment when compared to TMDs specialists.<sup>[7]</sup> Although our study was among the upcoming TMDs experts, it can be related that knowledge is good/ high among the experts.

It was noted that 56% of the participants said only 'little' or only theoretical knowledge on diagnosis and management of temporomandibular joint disorders is being provided in undergraduate education. This is in accordance with the results of the study by Patil et al, wherein the participants were of the same opinion.<sup>[6]</sup> A survey which was conducted in Iran by Baharvand et al., provides further evidence that general practitioners, field specialists and academic experts reached to a common conclusion regarding the inadequacy of undergraduate dental education on TMDs and orofacial pain.<sup>[8]</sup> This strongly suggests that undergraduate curriculum needs to be strengthened so as to provide both theoretical and practical knowledge on diagnosis and management of TMDs.

Majority of the participants are of the opinion that orthodontic treatment can be initiated in patients with temporomandibular joint disorders. Although there are conflicting views expressed in the literature, it is observed that there is a positive correlation between orthodontic treatment and decreased signs and symptoms of temporomandibular joint disorders. A few studies have found improvement in joint and muscle pain, but not in the treatment of joint noise.<sup>[9]</sup> It is proposed that, by treating malocclusion, orthodontic therapies can lead to the remodelling of TMJ, which overrides new functional needs and allows normal function to continue.<sup>[10]</sup> Varga et al stated that initiation of orthodontic treatment could be done in subjects with symptoms such as painless clicking and deviation.<sup>[11]</sup> However, he concluded that pain and dysfunction needs to be corrected before orthodontic therapy. Patil et al has reported that majority of the respondents of their study felt orthodontic treatment shouldn't be initiated in patients with TMDs.<sup>[6]</sup>

Literature strongly suggests that identification and removal of occlusal interferences is effective in the management of TMDs. Occlusal adjustments are done by selective grinding of the occlusal surface of teeth to equilibrate/correct occlusal interference, as occlusal interferences cause orthopaedic instability of the TMJ and hyperactivity of muscles of mastication.<sup>[12]</sup> This is in accordance with the opinion of majority of the participants (92%, n=69) of the present study.

We noted that majority of the participants were in agreement with the statement, 'Relaxation training is an effective technique in the management of myofascial pain'. It is in accordance with the literature wherein it is reported that relaxation techniques generally decrease sympathetic activity and arousal. Relaxation techniques aim to comfort body sensations, calm the mind, and in reducing muscle tone.<sup>[13]</sup> However, in the study by Patil et al, most of the TMDs and GDPs were not in favour of relaxation training as an effective technique in management of myofascial pain.<sup>[6]</sup> This difference may be attributed to the clinical experience of the practitioners.

Literature suggests that not all subjects with joint sounds require treatment.<sup>[13]</sup> The present study is in accordance with this, as majority of the participants were of the same opinion. Conflicting views were noted while we compared with opinions expressed by practicing specialists and general dental practitioners, who are of the opinion that all subjects with joint sounds require treatment.<sup>[6]</sup>

It is noted that majority of the participants disagreed with the statement, 'All subjects with TMDs need not undergo radiographic evaluation before formulation of treatment'. Similar opinion was expressed in the study by Patil et al.<sup>[6]</sup> However, literature suggests that radiographs are of diagnostic value in few conditions but not as a routine part of standard assessment.<sup>[13]</sup>

It is highly notable that 67% of the participants reported to have little confidence and 16% of the participants reported to have no confidence in diagnosis and management of temporomandibular joint disorders. It is similar with a previous study, which has reported that significant number of TMDs experts and GDPs lack confidence in diagnosis and management of temporomandibular joint disorders.<sup>[6]</sup> This is attributed to the level of knowledge being imparted in undergraduate curriculum with regard to TMDs.

The treatment modalities are diverse, conflicting and inconclusive. In the current study, for the question on modalities of treatment learnt and practiced during post-graduation course, it was noted that occlusal interference correction was majorly practiced followed by other modalities like parafunctional habit therapy, physical therapy, pharmacological management, heat application, surgical management, Transcutaneous electrical nerve stimulation(TENS), behavioural modification, trigger point therapy and laser therapy respectively. According to some of the systematic reviews and meta-analysis, it is reported that there is no evidence on occlusal adjustment having a therapeutic effect as it has the disadvantage of being irreversible. But, if occlusion is a precipitating factor, for instance placement of restorations leading to TMD, it is warranted to adjust the occlusion. As occlusal interference correction is irreversible, it needs to be evaluated cautiously and clinical indication should be documented and explained to the patient.<sup>[14]</sup>

Although it is said that electro physical interventions like TENS have helped in alleviating pain, there is lack of clinical evidence. It is noted from the literature that occlusal appliances, acupuncture, behavioural therapy, and jaw exercises have some evidence showing they are effective in alleviating pain for patients with TMDs.<sup>[14]</sup> Surgical interventions are based on the absolute indications as in trauma, ankyloses and in cases of reconstruction. Tissue engineering is also an emerging option for option for replacing diseased, displaced, or degenerated tissues.<sup>[15]</sup> However, no modality has emerged to be

superior to the other. Hence, treatment modality has to be tailor made for the individual based on the clinical conditions.

## CONCLUSION

The study revealed that post- graduate dental students have good level of theoretical knowledge but lack confidence in diagnosing and managing temporomandibular joint disorders. This calls for a curriculum that provides in – depth knowledge on diagnosis and management of temporomandibular joint disorders. Continuing dental education programmes, Fellowships and Workshops on temporomandibular joints may aid in enhancing the skills of dental professionals. Literature provides immense theoretical knowledge, but honing clinical skills for diagnosis and management of temporomandibular joint disorders is the need of hour.

## Conflict of Interest

There is no conflict of interest.

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Nil

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