

# Research Paper: Assessment of Attitude and Practice of General Dental Practitioners Dealing With Temporomandibular Disorders and Referral to Physiotherapists



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**Citation:** Samejo B, Farooq Lasi F, Mehmood A, Saleem S, Waseem H. Assessment of Attitude and Practice of General Dental Practitioners Dealing With Temporomandibular Disorders and Referral to Physiotherapists. Journal of Modern Rehabilitation. 2020; 14(2):113-120. <http://dx.doi.org/10.32598/JMR.14.2.5>

<http://dx.doi.org/10.32598/JMR.14.2.5>



## Article info:

Received: 14 Dec 2019

Accepted: 05 Mar 2020

Available Online: 01 Apr 2020

## Keywords:

Temporomandibular disorders (TMDs), General dental practitioners, Physiotherapy for TMD, Oral rehabilitation

## ABSTRACT

**Introduction:** This study was conducted to assess the attitude and practice of general dental practitioners when dealing with Temporomandibular Disorders (TMDs) and referral to physiotherapy.

**Materials and Methods:** This comparative cross-sectional study was conducted with a study population of General Dental Practitioners (GPDs) of Mirpur Khas Sindh. The total study population estimated was about 55 GPDs in this district. A convenient sampling technique was used to recruit the samples. The study questionnaire was adopted from the different articles and modified as per our socio-cultural needs. The reliability and validity of the questionnaire were calculated via chrome back alpha test by doing a pilot study on 25 participants and found its validity as 80% and reliability as 75%. The questionnaire consisted of three sections of general questions regarding referral to physiotherapy, attitude, and practice of general dental practitioners in managing temporomandibular joint dysfunctions (TMD).

**Results:** The results showed that 57.1% of GPDs believe that 53.1% of patients had neck pain and poor posture. Also, 81.6% of patients were referred to other healthcare providers, and only 22.4% of patients were referred to a physiotherapist. About 28.6% of patients were referred to physiotherapists just because of neck pain, only 22.4% of patients with postural alterations were referred to a physiotherapist. Also, 53.1% of GPDs had little confidence in assessing, therapeutic decision, and treatment outcomes of TMDs. About 69.4% of GPDs provided medical management to the patients suffering from TMD, while 44.9% of GPDs provided pharmacological management.

**Conclusion:** This study concluded that there is a need for TMD experts to deal with patients suffering from TMDs. General dental practitioners of Mirpur Khas, Sindh know little about the physiotherapeutic benefits for TMD. The majority of GPDs have very little confidence in making a diagnosis and treating patients suffering from temporomandibular dysfunctions.

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## 1. Introduction

**A** Temporomandibular Disorder (TMD) is a musculoskeletal disorder within the masticatory system [1]. TMD as defined by the American Academy of orofacial pain is a collective term for several clinical problems involving the masticatory muscles, Temporomandibular Joint (TMJ), and associated structures [2]. TMD prevalence ranges from 21.1% to 73.3% [3]. Between 75% and 90% of symptomatic patients will experience improvement with conservative management alone [4]. Those at higher risk of developing chronic TMD symptoms, such as patients with depression, anxiety, or pain-related disability, may benefit from referral to secondary care [4]. TMD may manifest as a pain in the temporomandibular region, jaw limitations, TMJ clicking, or crepitus while movement [5].

TMJ is used during our normal routine activities such as speaking, chewing, yawning, and swallowing [6]. The masticatory muscles form an integrated harmonious unit with the muscular activity of the neck and their receptors in the periodontium, the muscles, and the joint capsule [7]. The primary disorder can originate at any level of this complex system and causes its dysfunction. TMJ problems can begin in early life exhibiting progressive signs and symptoms in the third, fourth, and fifth decades of life [8]. TMD is associated with complaints of acute and chronic orofacial pains [9]. Early detection of orofacial pain and TMD is one of the main concerns to minimize the risk of pain, chronicity, and irreversible articular tissue destruction that leads to growth impairments [10]. The diagnosis of TMD often presents a serious challenge to general dental practitioners (GPDs). Sufficient knowledge and skills about TMD can help terminate the cycle of persistent medical referrals [11].

According to American Association for Dental Research, TMD diagnosis should be primarily based on patient's history, clinical examination and TMJ imaging which in turn help in distinguishing head and neck related medical problems, neurological and psychiatric conditions and detecting the existence of psychosocial factors [12]. Dentists react differently toward TMD based on several factors such as their knowledge, attitude and practice [13]. Different studies on the knowledge, attitude, and skills of GPDs and oral surgeons conclude that a high degree of discordance is found between the opinions of GPDs and oral surgeons over the domain of etiology, diagnosis, and choice of therapy for TMD [12].

Several therapies have been used for treating TMD, and many health care professionals believe that they can help patients to improve TMD symptoms [14]. Occlusal orthotics are beneficial for masticatory muscle pain, TMJ pain, TMJ dislocation, and restricted jaw mobility [15]. If the patient has cervical spine dysfunction that is worthy of treatment, he or she must be referred to a physiotherapist [16]. A dentist author has recommended a physical therapy referral for approximately 50% of his TMD patients [17]. Physiotherapy treatments that are used to improve TMD include manual techniques (stretching, mobilizations and manipulations of TMJ and cervical spine), self-stretching of TMJ and cervical spine, patient's education (i.e., postural instructions, relaxation techniques, and parafunctional awareness), and modalities that improve tissue health [18].

An international survey was conducted in 2013 which showed that 76% of GPDs managed TMD patients, 97.6% of GPDs used splints, 84.6% used medication, 85.9% made occlusal adjustments, 53.2% used jaw exercises and 35.0% of GPDs referred the patients to a physiotherapist [19]. Therefore this study aims to assess the attitude and practice of general dental practitioners regarding TMD and referral to physiotherapy.

The main objective of this study was to assess the attitude and practice of general dental practitioners regarding temporomandibular disorders and referral to a physiotherapist. In TMD, the patient suffers joint locking, cervical and fascial muscle tightness, and many other musculoskeletal symptoms. To treat these symptoms, it is necessary to refer the TMD patient to a physiotherapist for complete management.

## 2. Materials and Methods

This comparative cross-sectional study was conducted with a sample population consisting of general dental practitioners of Mirpur Khas Sindh. The total population estimated was about 55 GPDs of Mirpur Khas district after confirmation from the Mirpur Khas Health Department about the registered GDPs and the sample size was calculated by using Raosoft software. A convenient purposive sampling technique was used to enroll in the samples. All those dentists and oral surgeons were included in the study who have been practicing for a minimum of 1 year. The questionnaire was adopted from the different articles and modified as per our socio-cultural needs. The reliability and validity of the questionnaire were calculated via chrome back alpha test by doing a pilot study on 25 participants and found its validity as 80% and reliability as 75%.

A questionnaire consisting of multiple questions formulated for relevant, reliable literature was distributed among general dental practitioners and oral surgeons, and they were asked to answer the questions and return it after completion. The questionnaire consisted of three sections of general questions regarding referrals to physiotherapy, as well as attitude, and practice of general dentists regarding TMD. The written informed consent was signed before the study and participants were assured of the confidentiality of their responses which was approved by the Ethics Review Committee. Frequency tables were used to determine the association of GPDs regarding attitude and practice concerning TMDs and physiotherapy of TMD. Their responses were evaluated and results were statistically analyzed by SPSS v. 22.

### 3. Results

The number and percentages of answers to each question are shown in the tables below. Table 1 indicates that 57.1% of general dental practitioners believe that only 20% of their patients suffer from TMD out of which 57.1% were in the acute stage and 53.1% of patients have neck pain and poor posture. About 81.6% of patients were referred to other healthcare providers, and

only 22.4% of patients were referred to physiotherapists. Also, 28.6% of patients referred to physiotherapists just because of neck pain, and only 22.4% of patients with postural alterations were referred to physiotherapists. About, 32.7% of GPDs did not refer patients because they think there was no need for physiotherapy to treat TMD patients and 32.7% of GPDs did not refer TMD patients to physiotherapy because they did not know the benefits of physiotherapy. About 55.1% of GPDs were aware that physical therapy can treat patients with TMD; 81.6% of GPDs were aware that evidence suggests that physical therapy can improve TMD symptoms with oral exercises and manual therapy and postural reductions. Also, 55.1% of GPDs express that after participating in this survey they were more likely to refer patients with TMD to physical therapists when needed.

Table 2 shows that 95.9% were agreed that relaxation training was effective technique in the treatment of TMD, 85.7% GPD's were agreed that identification and removal of occlusal interference is effective in management of TMD, while 73.5% GPD's were agreed that all individuals with joint sounds do not require treatment. 59.2% GPD's were agreed that orthodontic treatment can be initiated in patient with TMD.

Table 1. General questions regarding the patients with TMD

Variable	Valid	No. (%)
What percentage of patients would you estimate to suffer from TMD symptoms (TMJ or muscle pain, clicking, popping, headaches, etc	0-20%	28 (57.1)
	20-40%	6(12.2)
	41-60%	8(16.3)
	61-80%	7 (14.3)
What stage of the disorder have most of your patients with TMD presented with during evaluations	Acute	28 (57.1)
	Sub-acute	4 (8.2)
	Chronic	15 (30.6)
Does any of the conditions below were present in your patients with TMD during evaluation? Neck pain, Poor Posture, Cervicogenic Headache	Yes	26 (53.1)
	No	18 (36.7)
	Never evaluated	5 (10.2)
Do you refer patients with TMD to other practitioners?	Yes	40 (81.6)
	No	9 (18.4)
What percentage of these patients do you refer?	0-5%	19 (38.8)
	5-25%	7 (14.3)
	25-50%	8 (16.3)
	50-75%	2 (4.1)
	75-100%	4 (8.2)

**Table 2.** Continuation of general questions regarding the patients with TMD

Variable	Valid	No. (%)
If you have never referred a patient with a TMJ related problem to a physical therapist, what is/are the reasons?	No need of PT treatment	16 (32.7)
	Did not know the benefits of physiotherapy	16 (32.7)
	Other	5 (10.2)
Prior to this survey, were you aware that physical therapist can treat patients with TMD by, for example reeducating jaw movements and restoring masticatory muscle function?	Yes	27 (55.1)
	No	12 (24.5)
Prior to this survey, were you aware that cervical spine pain may be involved as a cause of masticatory region pain?	Yes	15 (30.6)
	No	24 (49)
Prior to this survey, were you aware that the evidence suggests that physical therapy can improve TMD symptoms with oral exercises, manual therapy, and postural reduction?	Yes	40 (81.6)
	No	6 (12.2)
After participating in this survey, are you more likely to refer a patient with TMD to a physical therapist when needed?	Yes	27 (55.1)
	May be	20 (40.8)
	No	2 (4.1)

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**Table 3.** General questions regarding the referral to a physiotherapist

Variable	Valid	No. (%)
Do you refer TMD patients to Physical therapist?	Yes	11 (22.4)
	No	26 (53.1)
Refer TMD patient to physiotherapist because of Neck pain?	Yes	14 (28.6)
	No	23 (46.9)
Refer TMD patient to physiotherapist because of postural alterations?	Yes	11 (22.4)
	No	26 (53.1)
Refer TMD patient to physiotherapist because of Masticatory muscle tenderness?	Yes	16 (32.7)
	No	21 (42.9)
Refer TMD patient to physiotherapist because of Headaches?	Yes	1 (2)
	No	36 (73.5)
Refer TMD patient to physiotherapist because of Cervicogenic headaches?	Yes	5 (10.2)
	No	32 (65.3)
Refer TMD patient to physiotherapist because patient did not get better after your treatment?	Yes	6 (12.2)
	No	31 (63.2)

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**Table 4.** Questions related to the attitude of general dental practitioners regarding TMD

Variable	Valid	No. (%)
Identification and removal of occlusal interferences is effective in the management of temporomandibular joint disorders?	Agree	42 (85.7)
	Disagree	7 (14.3)
Orthodontic Treatment can be initiated in patients with temporomandibular joint disorders?	Agree	29 (59.2)
	Disagree	20 (40.8)
Relaxation-training is an effective technique in the management of myofacial pain?	Agree	47 (95.9)
	Disagree	2 (4.1)
All Individuals with joint sounds do not require treatment?	Agree	36 (73.5)
	Disagree	13 (26.5)
All Subjects with TMDs need not undergo radiographic evaluation before fomulation of treatment?	Agree	22 (44.9)
	Disagree	27 (55.1)

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**Table 5.** Questions related to the practice of general dental practitioners regarding TMD

Variable	Valid	No. (%)
Are you confident in dignosing, making a therapeutic decision and assessing treatment outcome of TMDs?	No Confidence	12 (24.5)
	Little confidence	26 (53.1)
	Full Confidence	10 (20.4)
Do you Provide Medical Management to the Patients of Temporomandibular Joint Disorders	Yes	34 (69.4)
	No	2 (4.1)
Do you Provide Pharmacological management to the Patients of Temporomandibular Joint Disorders?	Yes	22 (44.9)
	No	8 (16.3)
Do you provide Heat and Cold therapy management to the Patients of Temporomandibular Joint Disorders?	Yes	8 (16.3)
	No	22 (44.9)
Do you provide TENS therapy management to the Patients of Temporomandibular Joint Disorders?	Yes	6 (12.2)
	No	24 (49)
Do you provide behavioral modification therapy management to the Patients of Temporomandibular Joint Disorders?	Yes	14 (28.6)
	No	16 (32.7)

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**Table 6.** Continuation of questions related to the practice of general dental practitioners regarding TMD

Variable	Valid	No. (%)
Do you provide occlusal interference correction management to the Patients of Temporomandibular Joint Disorders?	Yes	11 (22.4)
	No	19 (38.8)
Do you provide physical therapy management to the Patients of Temporomandibular Joint Disorders?	Yes	16 (32.7)
	No	14 (28.6)
Do you provide Parafunctional habit correction management to the Patients of Temporomandibular Joint Disorders?	Yes	15 (30.6)
	No	15 (30.6)
Do you Feel the need for more experts in the field of temporomandibular joint disorders in the region of your practice?	Yes	32 (65.3)
	No	4 (8.2)
Have you ever taken continuing education courses on TMD?	Yes	9 (18.4)
	No	27 (55.1)
If no, have you updated your knowledge about TMD?	Yes	26 (53.1)
	No	10 (20.4)

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Table 3 shows that 53.1 GPD's have little confidence in assessing, therapeutic decision and treatment outcomes of TMD's. 69.4% GPD's provide medical management to the patients suffering from TMD while 44.9% GPD's provide pharmacological management, 28.6% GPD's provide behavioral modifications management to the patient with TMD, 16.3% GPD's provide heat and cold therapy for management of TMD, while only 12.2 GPD's provide TENS therapy for management of patients suffering from TMD. Only 18.4% GPD's continue education courses on TMD while 65.3% GPD's feels that there is need for more experts in the field of temporomandibular joint disorders in Mirpurkhas, Sindh.

Table 4 presents that 95.9% of GPDs agreed that relaxation training was an effective technique in the treatment of TMD. Also, 85.7% of GPDs agreed that recognition and elimination of occlusal interference were effectual in the treatment of TMD, while 73.5% of GPDs believed that the patients having crepitus in TMJ did not require management. About 59.2% of GPDs agreed that orthodontic treatment could be started in patients with TMD.

Table 5 presents that 53.1% of GPDs have little confidence in assessing, therapeutic decision, and treatment outcomes of TMDs. About 69.4% of GPDs prescribed medical management to the patients suffering from

TMD while 44.9% of GPDs provided pharmacological management; 28.6% of GPDs recommended behavioral modifications management to the patient with TMD, and 16.3% of GPDs offered heat and cold therapy for the management of TMD. Only 12.2% of GPDs prescribed transcutaneous electrical nerve stimulation (TENS) for the management of patients suffering from TMD. About 18.4% of GPDs continue education courses on TMD while 65.3% of GPDs feel a dire need for a specialist in the field of TMDs in Mirpur Khas, Sindh (Table 6).

#### 4. Discussion

In this study, researchers have investigated the attitude and practice of GPDs regarding TMD and referral to physiotherapists through a self-administered questionnaire that includes general questions for referrals, and questions about attitude and practice. GPDs received 20% of patients that primarily diagnosed with TMD based on the radiographic evaluation. Table 1 shows general questions regarding TMD patient population and their referrals. It shows that the majority of GPDs (57.1%) suggest that only 20% of patients suffer from TMD symptoms such as TMJ muscle pain, clicking, popping, and headaches and the majority of cases were acute.

According to GPDs, 53.1% of patients suffer from neck pain, poor posture, and cervicogenic headaches during evaluation. About 32.7% of GPDs do not refer patients to physical therapists because according to them there was no need for physiotherapy while 32.7% of GPDs do not refer TMD patients because they did not know the benefits of physiotherapy. According to GPDs, sometimes they refer TMD patients to a physical therapist just because of masticatory muscle tenderness and the second most common cause was neck pain. About 81.6% of GPDs were aware that physiotherapy can improve TMD symptoms with exercise, manual therapy, and postural reeducation. The majority (95.9%) of GPDs believe that relaxation training is effective in the management of patients suffering from TMD while 85.7% of GPDs believe that recognition and elimination of occlusal interference are effectual in the treatment of TMD patient. About 73.5% of GPDs state that all subjects with TMJ may not require management. Regarding practice, only 53.1% of GPDs have little confidence in clinical decision making, diagnosis, and management outcomes of TMD. The majority of GPDs (65.3%) feel the need for more experts in the field of TMD in Mirpurkhas, Sindh.

An study entitled “Diagnosis of TMD Based on Research Diagnostic Criteria” shows a higher incidence of TMD among females and the maximum number was in the internal derangement group followed by pathosis and muscle disorders [2].

Another study entitled “The Efficacy of Traditional, Low-Cost and Non-splint Therapies for TMD” shows that traditional splint therapy offered no benefit over soft vinyl splint therapy to treat TMDs [20]. A study entitled “Management and Treatment of TMD” shows that TMD is associated with cervical pain and makes collective symptoms so routine physiotherapy is effective in the treatment of TMDs [18].

Another study entitled “Physiotherapeutic Treatment for Temporomandibular Disorders (TMD)” suggested the evidence of symptoms and biomechanical associations between cervical and masticatory systems. Manual therapy, therapeutic devices (like ultrasound, TENS), and postural re-education must be applied in a physical therapy treatment for TMD patients, but an appropriate intervention should be related not only to symptoms relief but also to TMDs etiology. Because of such considerations, one of the most important approaches for TMD physical therapy must be the modification of craniocervical biomechanics and its effects on posture as an etiological or perpetuating TMD factor [21].

This study concludes that there is a need for TMD experts to deal with patients suffering from TMD. General dental practitioners of Mirpur Khas, Sindh have little knowledge regarding the physiotherapeutic benefits of TMD. The majority of GPDs have very little confidence in making a diagnosis and treating patients suffering from temporomandibular dysfunctions. GPDs treat the majority of TMD patients via pharmacological treatment and do not refer TMD patients to physical therapists because according to them, there is no need for physiotherapy in TMD as they did not know the benefits of physiotherapy.

## Ethical Considerations

### Compliance with ethical guidelines

All ethical considerations were maintained during collection of data, written informed consent were taken prior to participation.

### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or non-profit sectors.

### Authors contributions

Conceptualization, Methodology, and Resources: Bakhtawar Samejo; Funding, Writing original draft, Review, and editing: All authors; Supervision: Fahad Farooq Iasi.

### Conflict of interest

The authors declared no conflict of interest.

### Acknowledgements

We like to express our special thanks to all authors who have contributed in this study and special thanks to all our participants who have participated in this study.

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