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Knowledge and Attitude of Dentists towards Physical Therapy for the Management of Temporomandibular Disorders

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Abstract:
Aim and Objective- Physical therapy (PT) has been shown to be one of the most successful conservative therapies for Temporomandibular disorders (TMD). The significance of collaborating with physical therapists in the management of TMD pain is not recognized by all dentists. So, the research was planned to find out how much dentists in Pune (Maharashtra) have knowledge about the benefits of physical therapy for TMD pain and to raise awareness about collaborations.

Material and Method- The research was conducted using an online questionnaire and the complete knowledge and information on patient referral were presented per dentist. **Results-** The survey was completed by 256 dentists. Before the study, 41% of dentists were unaware that PTs would help patients with TMD. In comparison to other specialties, oral surgeons and orthodontists had knowledge of PT. Following the study, 81 % of dentists said they were more likely to refer their patients of TMD to PT, and 80 % said they wanted to learn more about the advantages of collaborations. **Conclusion-** This research demonstrates that dentists in Pune are unaware of the advantages of physical therapy for TMD care. This research increased the understanding of benefits of a multidisciplinary approach in Pune dental professional.
Keywords: Physical therapy, Temporomandibular disorders, Dentist.

Introduction:

The temporomandibular joint (TMJ) have an important role in mastication, deglutition and phonation [1]. TMD is a musculoskeletal state that affects the TMJ, masticatory muscles, dental occlusion and related structures and the cervical spine [2, 3]. It is the most common form of chronic orofacial pain, and it can have a significant impact on a patient's quality of life by limiting their ability to function and communicate socially [3].

TMJ pain affects about 10% of the population [4], and 3.6 % –7% of them seek care because of the severity of symptoms [3, 5]. Limited mouth opening, local pain in the TMJ and/or masticatory muscles, TMJ sounds and headaches are all signs and symptoms of TMD [5–7].

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TMD pain was found to be related with cervical spine disorders 70% of the cases [7–11].
The Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) [12] are used to classify the various forms of TMD. TMD may be acute or chronic, simple or complex, with long-term cognitive, psychosocial, and behavioral consequences [12]. For effective treatment of chronic TMD cases, a multidisciplinary approach is especially necessary [13]. Dentists, physical therapists (PTs), speech pathologists, doctors, and psychologists can be involved in the management of TMD. The least invasive and cost-effective treatment choice will be one that takes into account TMD-related factors such as poor posture, parafunctional habits, poor sleep, widespread discomfort, and depression [3].
One of the most successful conservative therapies for TMD is physical therapy (PT) [14]. Other noninvasive interventions that have been shown to help patients with TMD include behavioral therapy and occlusal appliances [15]. The detection of musculoskeletal components that causes the symptoms in patient's is the most significant contribution made by PTs [7]. Since the TMJs are part of the musculoskeletal system, physical therapists can treat TMJ-related pain in the same way they treat pain in other joints. TMD pain caused by masticatory muscle pain, inflammation, disc displacement, TMJ hypo/hypermobility, fibrous adhesion and bruxism may all be treated with PT [7]. Jaw exercises, manual therapy, and postural re-education have all been shown to be affective in minimising pain and improving function in TMD patients in systematic reviews [16, 17].
To advance the clinical outcomes of patients, further cooperation between dentists and physical therapists is needed for the management of TMD. Not all dentists understand the significance of including physical therapists in the management of TMD. It is uncertain if dentists in Pune are aware of PT's function in TMD care. As a result, the main goal of this study was to ascertain the existing level of understanding among dentists in Pune regarding the significance of physical therapy and cooperation with physical therapists in the management of TMD. The secondary goal was to raise dentists' awareness about the significance of PT and the advantages of collaboration between PTs and dentists in TMD care, with the goal of potentially increasing partnerships between PTs and dentists in TMD management for the best results.

Material and Method:

Study Design- It was a cross-sectional descriptive study permitted by_____Ethical Committee.
Participants- Dentists with valid dental licenses in Pune (Maharashtra) were contacted and an email was sent to them with aim and objectives of the study and a link of the online survey. Dentists were told that no personal identification would be disclosed or issued, and their input was entirely voluntary. All data was processed in a private manner. They were also told that they would not be compensated for their participation in the report. Upon completion of the survey, they were given a brochure about PT for treating TMD pain. From the initial email, a confirmation email was sent three times every two weeks.
Questionnaire- Qualtrics online survey program (Qualtrics Labs Inc.) was used to develop a questionnaire. The survey was reviewed by 2 dentists to gather feedback for improvements. After their feedback necessary improvements were made in the survey. There were a total of 24 questions in the survey: seven about demographics, twelve about number of TMD patient and referrals, and five about general information. It was assessed that the online survey can be completed within 5–10 minutes.
Data analysis- The responses were analyzed using descriptive statistics. The data was provided as the total number of participants (n) and the frequency (percent) of their participation. Some dentists' written material was also considered. The respondents' complete knowledge about PT, as well as details on referral of patient, were measured and tabulated per dentist specialization.

Results:

Participant's demographic and characteristics- The survey was completed by 256 dentists (response rate of 2.5%) out of over 10,000 emails sent. The average age of the participants was 51 years (26 to 78 years), and most of the participants (67 percent) were male. Large number of participants (97%) had a bachelor degree, 2% of them had a master's degree, and only 0.4% had doctorate (PhD). Mostly participants (86%) have a private dental practice, and the majority (41%) said they had been practicing for 21 to 35 years. General dentists made up the bulk of the participants (73%) followed by orthodontists (8%) and other specialties

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(18%), which included endodontics, periodontist and prosthodontist. Most of the dentists (95%) had never taken a TMD continuing education course. PT was mentioned by six dentists as a subject in their continuing education course.

Table 1: displays the demographics and characteristics of the participants in greater detail.

Variable	Value
Age, years (Means, standard deviation and range)	51 ± 13 (26-78)
Gender, Male/female (Total number, percentage)	172 (67%)/84 (33%)
Highest level of education (total number, percentage Professional doctorate Master PhD	 243 (97.5%) 5 (2%) 1 (0.4%)
Areas of practice (total number, percentage) General dentist Orthodontists Endodontist Prosthodontics Periodontist Oral surgeon Other	 178 (73%) 20 (8%) 9 (4%) 5 (2%) 7 (3%) 7 (3%) 18 (7%)
Years of practice (total number, percentage) 0–5 6–10 11–15 16–20 21–25 26–30 31–35 36–40 41–45 46–50 51–55 >56	 36 (15%) 26 (11%) 21 (9%) 20 (8%) 32 (13%) 32 (13%) 37 (15%) 23 (9%) 13 (5%) 5 (2%) 1 (0.4%) 1 (0.4%)
Continuum educational course in TMD Yes No	 150 (61%) 95 (39%)

TMD patient's information- More than half of the dentists (57%) reported that between 1 and 15% of their patients suffer from TMD. Just two dentists said they had never seen these patients, while 17 dentists (7 %) said more than 55 percent of their patients suffer from TMD. Parafunction habits (89 %), occlusion alterations (75 %), muscle tightness/tender points (75%), and headaches (69 %) were the most common TMD symptoms assessed and/or handled. TMJ hypermobility (26 %) and TMJ degeneration were the least common characteristics (38 %). Traumatic injury, condyle fracture, craniocervical problems and neuropathic pain were among the other TMD symptoms observed and/or managed. Just seven dentists (3%) said they had never seen

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a patient with a TMJ problem. Observation of jaw motions while opening and closing (86 %), assessing for dental occlusion (84 %), TMJ palpation (83 %), and indicators of parafunctional patterns (81 %)were the most common methods of TMD assessment used by dentists. Neck range of movement, images, biopsychosocial measurements, diagnostic anesthesia, radiographs, MRI, and surface electromyography were all used to test TMD patients. During the initial assessment, the majority of the patients (55%) had a chronic illness, as contrasting to acute (25%) and subacute (20%).
When asked either their TMD patients still had neck pain, bad posture, or cervicogenic headache, 13 %, 34 %, and 32 % of dentists said they had never evaluated these conditions, respectively. Seventy-six percent, 58 percent, and 59 percent of those who tested said they found these disorders in their patients, respectively.

Treatment and referral- Bite splints (90 percent), medicine prescription (62 percent), and occlusion correction (58 percent) were the most common procedures used to treat TMD patients (if patients were not referred). Other treatment techniques used by 69 dentists (30%) included ice/heat therapy, diet changes, arthrocentesis, botox, jaw and neck exercises, soft tissue massage, thermotherapy, trigger point injection and cryotherapy. Most of TMD patients (86%) were referred to other health care professionals. The majority of these dentists (70%) said they referred up to 25% of their patients. Thirteen percent (13%) of respondents said they refer 75–100% of their TMD patients. Oral surgeons (62 percent), orthodontists (32 percent), and physical therapists (31 percent) were the most frequently referred health care providers for TMD patients (Figure 1). TMJ/orofacial pain specialist, massage therapist, gnathologist, neuromuscular dentist, neurologist, endocrinologist, ENT, chiropractor and osteopath were among the other providers listed. Table 2 indicates the percentage of TMD patients referred to PTs by dentist specialty. Oral surgeons referred the most TMD patients to PTs (80%), followed by orthodontists (55 %).

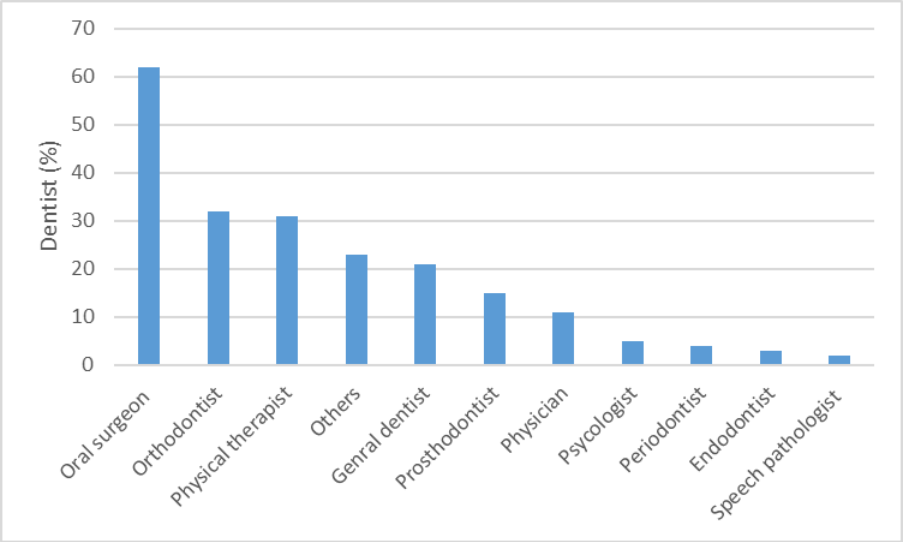

Figure 1: Health care providers TMD patients are referred to

Table 2: Healthcare providers TMD patients are referred to by dentist specialty (total number and percentage)

Patient referral to	General dentist	Orthodontist	Endodontist	Prosthodontist	Periodontist	Oral surgeon	Other
General Dentist	26 17.81%	9 45.00%	4 44.44%	0 -	2 40.00%	1 20.00%	3 27.27%
Orthodontist	53 36.30%	0 -	2 22.22%	0 -	1 20.00%	4 80.00%	4 36.36%
Endodontist	3 2.05%	1 5.00%	0 -	0 -	1 20.00%	0 -	0 -

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Prosthodontist	18 12.33%	2 10.00%	4 44.44%	2 50.00%	2 40.00%	2 40.00%	1 9.09%
Peridontist	6 4.11%	0 -	2 22.22%	0 -	0 -	0 -	0 -
Oral surgeon	100 68.49%	10 50.00%	3 33.33%	1 25.00%	3 60.00%	0 -	7 63.64%
Physical therapist	42 28.77%	11 55.00%	1 11.11%	1 25.00%	2 40.00%	4 80.00%	1 9.09%
Physician	15 10.27%	5 25.00%	0 -	1 25.00%	0 -	1 20.00%	0 -
Psychologist	6 4.11%	5 25.00%	0 -	1 25.00%	0 -	0 -	0 -
Speech pathologist	1 0.68%	1 5.00%	0 -	0 -	0 -	0 -	1 9.09%
Other	34 23.29%	6 30.00%	3 33.33%	1 25.00%	1 20.00%	0 -	4 36.36%

Neck pain (43 percent), tenderness of muscles of mastication (34 percent), and alterations in the posture (31 percent) were the most common reasons for TMD patients being referred to a PT (Figure 2). The most common clarification for not sending a patient to PT was that they were unaware of the patient's benefits (58 percent of them). “Lack of awareness of a PT who handles TMJ or contact information,” “insurance payment,” “no structured referral system in place,” and the assumption that “PT is only a temporary fix” or “it is out of their ability set” were among the other reasons given. In reality, 41% of all dentists polled had no idea that PTs could help patients with TMD.

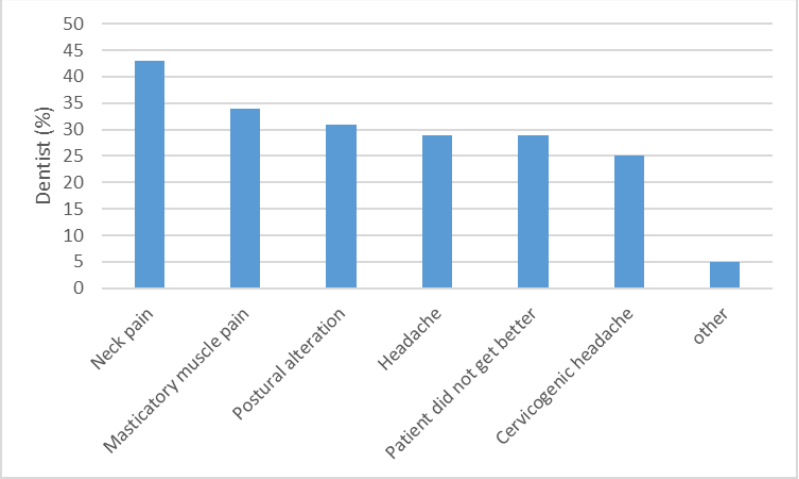

Figure 2: Conditions under which TMD patients are referred to physical therapy.

Physical therapy awareness- Before the study, 41% of dentists said they were unaware that PTs would help patients with TMD by retraining jaw movements and restoring muscles of mastication, among other things (Table 3). Furthermore, 32% of dentists said they were unaware that the cervical spine might be involved in pain of masticatory region. In comparison to other specialties, oral surgeons and orthodontists were more knowledgeable about PT for TMD management (Table 3).

Table 3: Dentists’ awareness about physical therapy treatment for TMD by dentist specialty

	Aware	**Not aware**
General dentist	96 (58%)	70 (42%)
Orthodontist	14 (70%)	6 (30%)
Endodontist	5 (56%)	4 (44%)

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Prosthodontist	2 (40%)	3 (60%)
Periodontist	4 (57%)	3 (43%)
Oral surgeon	6 (100%)	0 (0%)
Other	8 (50%)	8 (50%)
Total	135 (59%)	94 (41%)

When asked if they are more likely to refer any of their TMD patients to a PT as a result of participating in the survey, 184 dentists (81%) said yes or may be. "Do not know how to refer it," "none have offered services," "too specific a care for PT to be helpful," "insurance issues," "not permitted to refer," "PT treatment only helps temporarily," or "do not know where to refer in my area" are some of the reasons for not being likely to refer or could be. At the conclusion of the study, 80% of dentists (180) wanted to learn more about the advantages of collaborating with PTs to treat TMD. Table 4 shows the percentage of dentists who want to learn more about the benefits of collaborating with PTs to treat TMD patients, subdivided by dentist specialization.

Table 4: Dentists' interest on the benefits of collaborations with physical therapists to treat TMD patients by dentist specialty.

	Yes	**No**
General dentist	133 (83%)	28 (17%)
Orthodontist	16 (80%)	4 (20%)
Endodontist	6 (67%)	3 (33%)
Prosthodontist	4 (80%)	1 (20%)
Periodontist	4 (57%)	3 (43%)
Oral surgeon	5 (83%)	1 (17%)
Other	11 (69%)	5 (31%)
Total	179 (80%)	45 (20%)

Discussion:

It was the first research to use an online questionnaire to assess dentists' knowledge of the value of a multidisciplinary attitude with PT for the treatment of TMD in Pune. There is data about TMD patients treated by dentists, TMD patient referral, and their desire to learn more about PT for TMD pain control. Though, the findings of this research should be viewed carefully due to the low response rate, which makes the findings' generalizability doubtful. However, this initial research provides useful evidence about the participants' current level of awareness and can aid in increasing the level of cooperation between physical therapists and dentists in the treatment of TMD. 65 (74%) out of 88 dentists surveyed who never referred a TMD patient to a PT were unaware of the advantages of PT in treating TMD patients. If more dentists were aware of PT for TMD patients, the number of referrals to PTs would increase. In fact, 81 percent of dentists are want to refer a TMD patient to PT as a result of this study. Other research should look at whether or not the referral is currently taking place in Pune. According to a dentist who co-authored a research with a physical therapist colleague [2], 50 percent of his patients was referred to physical therapy. According to the characteristics of TMD patients identified by dentists in our survey, the majority of them could be referred to PT for additional care.

Nearly one-third of the dentists polled did not check their TMD patients for bad head and neck posture or cervicogenic headaches. Furthermore, 13% of dentists do not check for the presence of neck pain. Earlier studies have found a connection between TMD pain and cervical spine disorders such as neck pain and bad posture [7, 9–11], so dentists should be attentive of these problems in their patients and refer them to physical therapists for care and collaboration. PTs also should be mindful of any potential tooth pain or dental occlusion issues associated with TMD during their diagnosis so that the patient can be referred to the dentist. If patients with TMD have a lot of parafunction habits, the dentist can make a dental splint for them. Until beginning the exercises, PTs may use intraoral mobilizations and soft tissue massage to deprogram the masticatory muscles. Patients with TMD will benefit from collaboration between

dentists and physical therapists [2]. Patients who received both dental splint therapy and PT had better improvements in range of mouth movement than those who received splint therapy alone in a randomized control trial [18].

Oral surgeons were the most frequently referred health care practitioners for TMD patients (62 percent). Nearly 70% of general dentists refer patients to oral surgeons, according to Table 4. TMD patients seem to be referred to PT for post-surgery care in the majority of cases. PT has been shown in studies to be effective in releasing pain and reinstating TMJ function after surgery [19, 20]. TMD patients should, though, be referred to PT before considering a non-conservative procedure like surgery, if necessary. Furthermore, in cases where surgery is required, PT should be seen as a presurgical care to help patients prepare for surgery. If physical therapy is performed prior to surgery, the effects of the surgery can be enhanced. Thankfully, 55% of orthodontists refer TMD patients to PT.

Due to insufficiency of understanding among dentists about the welfares of physical therapy in the care of TMD patients, fewer patients are referred to PT and collaborations with PT are established. The most collective explanation for not referring a patient to a PT was a lack of knowledge about the welfares of PT (58 percent). Since 32% of dentists were unaware of the connection between the cervical spine and orofacial symptoms, further education is required. Beside the manual therapy and jaw exercises, cervical spine postural re-education is suggested for TMD patients [16]. PT is regarded as an important component of TMD care [13]. Patients with TMD recover from physical therapy, behavioral therapy, and occlusal appliances [15]. As per the authors of this report, evidences on the role of physical therapy in TMD care should be included in seminars and lectures in dentistry curriculums to educate students on the significance of interdisciplinary treatment of TMD patients.

Following the study, 62 (43 percent) of dentists who were aware of the welfares of PT for the treatment of TMD patients before the survey (146 dentists) are more likely to refer patients to PTs. However, 58 percent of them said they may or may not refer (31 percent and 27 percent, respectively). As a result, just because certain dentists know the advantages of PT does not mean that referrals are being made. One potential explanation for the low rate of TMD patients being referred to physical therapists is a shortage of accessible PTs with experience in treating TMD, as not all PTs are skilled and self-assured in treating TMD patients. The number of PTs with advanced education and training in the field of TMD, like those accredited by the Physical Therapy Board of Craniofacial and Cervical Therapeutics (most of them are members of the American Academy of Orofacial Pain), is a minor percentage of the American Physical Therapy Association (APTA). As a result, all PT programs should reinforce further education about TMJ, TMD, and the multidisciplinary approach between dentists and PTs in the pain management of TMD patients. A dentist made the interesting observation that there is a need to inform PTs about alliances as well. A research of PTs' knowledge of how to manage TMD patients must be carried out. Their ability to work collaboratively with dentists should also be assessed. Dentists will be more likely to refer their patients if more PTs are talented in treating these patients. All PT programs should provide information on as part of their curriculum.

TMD is complicated by the fact that patients may have myalgia, arthralgia, myofascial pain, degenerative joint disease, disc displacement disorders and headache due to TMD, among other conditions [12]. Other related causes, such as sleep disturbances, generalized pain and depression, may also be present. As a result, diagnosing and treating these patients is difficult [12], and TMD should be treated by a multidisciplinary team. Though, not all disciplines are needed for the treatment of all TMD cases. The symptoms of the patient should be weighed when deciding which clinicians should be involved.

Study limitation- Just 2.4 percent of the over 10,000 dentists contacted replied to the survey. The authors conclude that not all email addresses in the list given were reviewed, which may have influenced the number of responses received. The survey was designed to be short (5–10 minutes to complete) in order to maximize participation. In addition, upon enrollment, a brochure with details about PT care was presented. In future research, other methods to improve participation should be measured.

Only dentists from the city of Pune were included in this research. Future research can have a greater sample size (higher response rate) by including more dentists from different specialties as well as dentists from other cities. General dentists made up the bulk of those who replied to the survey (73 percent). When data is

analyzed by specialty, the outcomes cannot be generalizable. As a result, the findings must be viewed with caution; further research with greater response rates and a wider range of dental specialties is needed.

Conclusion:

According to the survey, a significant proportion of dentists were unaware of the benefits of physical therapy in the treatment of TMD pain. This reseach helped to raise awareness among participant dentists in Pune about the value of physical therapy and the benefits of a multidisciplinary approach with PT to their patients. The majority of dentists polled (80%) wanted to learn more about the advantages of collaborating with physical therapists to treat TMD patients. This is significant because dentists' improved understanding of the value of physical therapy, as well as their desire to learn more about the welfares, may lead to more collaborations between dentists and physical therapists in the care of TMD patients in Pune. Those collaborations are more likely to support TMD patients. Future research should look at whether dentist-physical therapist collaborations are on the rise, and whether these collaborations support TMD patients' care.

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