

## Appraising of Knowledge, Attitude and Practice among Dental Practitioners Regarding Role of Physiotherapy in Temporomandibular Joint Disorders

### ABSTRACT

#### Objectives

The aim is to assess the knowledge, attitude and practice of dental practitioners concerning physiotherapy management of temporomandibular joint dysfunctions (TMDs).

#### Method

61 dentists were included from Tertiary, secondary and private dental clinics of Karachi, and the study design was cross sectional.

#### Results

Prior to survey 45.9% of did not had knowledge about physical therapy management TMD. Maxillofacial surgeons and master's degree holders had more knowledge about physical therapy (PT) management. 45.9% dentists reported that PT is non-effective treatment approach. Lack of knowledge on dentist's behalf is the foremost cause of less referral to PT 88.5%. Jaw exercises were prescribed by 83.6% of dentists. In the end of the survey 52.5% dentists were reluctant to refer, 47.5% were maybe they will refer and 96.7% dentists were eager to gain more knowledge about the benefits of PT and collaborative treatment.

#### Conclusions

This study concluded that the dental practitioners of Karachi lack knowledge, attitude and practice regarding physiotherapy treatment of TMD. The benefits of multidisciplinary approach while treating TMDs were not very well known to dental practitioners and its benefits to patients. This study increased the knowledge of surveyed practitioners

#### Keywords

Dentistry, Masticatory Muscles, Temporomandibular Joint Disorders, Orthodontics, Temporomandibular Joint, Manipulation,

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## INTRODUCTION

Temporomandibular joint (TMJ) is one of the joints in the human body which approximately open and closed 2000 time in a day, while performing different task such as talking, chewing, breathing, swallowing, yawning and snoring even they secure the minimal consideration, so in this manner it will consider as the most commonly used joint in the body. Cervical spine alignment of jaw and teeth are fundamentally associated in dysfunction of TMJ. It is an expression used to delineate multiplicity of clinical disorders yielding in jaw pain or dysfunction<sup>1</sup>. TMDs are representing as one of the most common chronic orofacial pain conditions. Number of studies reported prevalence that this disorder impact 10% - 25% of the<sup>2, 3</sup> yearly incidence rate of 2%-4%<sup>4</sup>. TMDs have often been an emphasis of interest among clinicians<sup>5</sup>. American Academy of Orofacial Pain (AAOP) states that Temporomandibular joint Dysfunction is the collective term that involves masticator muscles and its associated structures or both, hence its will present in variety of clinical complication<sup>1,6,7</sup>. Patients with TMD presents with complains of click or crackles sound and limitations in range of motion (ROM) or deviation in opening of jaw and mandibular dysfunction whilst pain in TMJ and its surrounding structure is one of the common symptom, 39% of the general population experiences at least one of the sign or indication of TMJ disorders<sup>8</sup>. The occurrence of continuous pain is the foremost reason that leads TMD patients look up for consultation or medical advice<sup>9</sup>. Many patients initially seek help from dentist's consequent to the region of their pain<sup>10</sup>. The assimilated operation between the dental practitioners and the physiotherapist helps in early diagnosis and improves the effectiveness of therapeutic interventions<sup>11</sup>. Commonly TMD is the problem that is related to musculoskeletal system; in this condition physiotherapists have variety of option to treat the dysfunction<sup>10</sup>. Physiotherapy treatment in management of TMDs is mostly used as a conservative treatment. However, the physiotherapy goal is to restore the normal mandibular function and to reduce the tenderness swelling and inflammation, by using variety of therapeutic intervention such as mobilization, manipulation, ultrasonic therapy, laser therapy with the combination of exercises that are used from many years to treat that problem<sup>12</sup>. The principle approach in physical therapy treatment comprises of exercise and manual therapy to improve the coordination, relaxation, and enhancement in muscle strength. Ultrasound and laser therapy help in pain management by reducing the edema and inflammation by increasing the vasodilatation which also help in wound healing<sup>12</sup>. Furthermore, manipulating techniques and myofascial release are beneficial for enhancement in ROM, which leads to maximum mouth opening (MMO)<sup>8</sup>. Consecutively, the researches show evidence that physiotherapy interventions are effective in management of TMD for pain reduction and that there is inclination towards progressed active ROM. TMD is managed by a combination of physiotherapy, splint therapy, orthodontics, pharmacotherapy, counseling, and surgery, among others. Noninvasive treatments tend to be the first option for approximately 85 to 90% of TMD patients<sup>8</sup>. The meta-analysis conducted in 2016 suggested that musculoskeletal manipulation approaches (MMA) are efficacious in treating TMDs. MMA yields a significant pain decrease during active mouth opening and ROM in comparison to other conservative treatments<sup>13</sup>. Nevertheless, physiotherapy forms the part of a non-surgical approach for the initial management of patients with TMD<sup>14</sup>. In Pakistan, TMJ disorders rehabilitation is a neglected domain for physiotherapist however TMD management is collaborative operations between the dental practitioners and physiotherapists. In management of TMD it is really important for dental practitioners and physiotherapist to work together for effective rehabilitation of patients. Therefore, this study will be aimed to assess the KAP (Knowledge, Attitude and Practice) of physiotherapy in the treatment of TMD in order to determine the rate of referrals to physiotherapy advocated by dental and maxillofacial surgeons in Karachi.

## **METHODOLOGY**

### **Study Design**

Cross-sectional study

### **Study setting**

This study was conducted in the tertiary and secondary care hospital and at private dental clinics in Karachi.

### **Target population**

Dental practitioners along with the Maxillofacial Surgeons

### **Duration of study**

Study was conducted in the duration of 6 months.

### **Sample Size**

Total number of 61 samples was collected.

### **Sample Technique**

Sample was collected through Non-Probability Convenient Sample Technique.

### **Inclusion criteria**

Registered dental surgeons and practitioners who have experience of >5 years and age of < 55 years.

### **Exclusion criteria**

Dental surgeons not registered in PMDC. And all non-practicing Dental surgeons with >55 years was excluded from the study.

### **Data Collection Method and Instrument**

The study was conducted by a group of students from Ziauddin College of Rehabilitation Sciences; the data was collected through a self-designed questionnaire.

### **Procedure**

A total of 61 participants were enrolled in the study including 32 males and 29 females, who were registered with Pakistan Medical and Dental Council (PMDC) and having experience of 5 years or more. Six trained physical therapists were assigned for data collection. Visiting schedule for the data collection was decided keeping the peak visited days and hours by the dental surgeons under consideration's secondary and tertiary care hospitals, private dental clinics of Karachi was selected to recruit the participants. On each visit to the hospital/ clinic firstly, the permission letter was displayed and written consent was taken from the participants and their questions regarding the research were addressed.

### **Data Analysis**

Data was analysed on SPSS (Statistical Package for Social Sciences) version 20. The demographic characteristics of the participants were represented through frequency, mean and standard deviations whereas the participant responses were evaluated through frequency and percentage.

## RESULTS

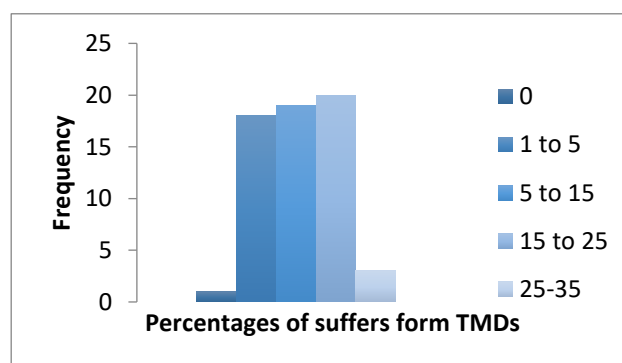
A total of 61 participants were included in this survey with mean age was 34.21 years with range of 28 to 50 years out of which 32 (52.5%) were male and 29 (47.5%) were females. Thirty-seven of participants (60.7%) had earned their Bachelors in Dental Surgery (BDS) degree, 19 participants (31.1%) had earned their master's degree and 5 participants (8.2%) had completed their From College of Physicians and Surgeons Pakistan (FCPS, Maxillofacial Surgeons) as shown in Table 1.

<b>Table.1 Demographic Characteristics</b>	
<b>No. of Participants</b>	N= 61
<b>Age in years (Mean <math>\pm</math> S.D)</b>	34.21 $\pm$ 5.13 (28-50)
<b>Male</b>	32 (52.5%)
<b>Female</b>	29 (47.5%)
<b>Qualification</b>	
<b>BDS</b>	37 (60.7%)
<b>Masters</b>	19 (31.1%)
<b>FCPS</b>	5 (8.2%)

The questionnaire is comprise of three component including Knowledge, Attitude and Practice. The detail of component as follows.

## KNOWLEDGE

Twenty dental practitioners (32.8%) surveyed estimated that 15% to 25% of their patients suffered from TMD symptoms, 19 participants (31.1%) reported 5% to 15%, 18 participants (29.5%) reported 1% to 5%, 3 participants (4.9%) reported 25% to 35% of their patients suffer from TMD respectively and only 1 dental practitioner (1.6%) haven't seen patients suffered from TMD symptoms as illustrated in figure 1.

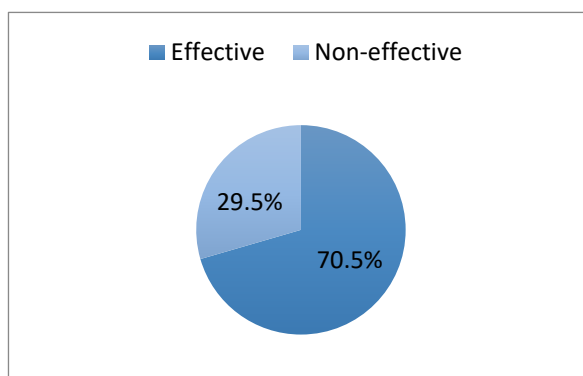


**Figure.1 Percentage of participants suffering from TMDs Symptoms**

Forty-five of the dental practitioners (73.8%) referred TMD patients to other health care providers, out of which 33 participants (54.1%) referred to Maxillofacial Surgeons, 11 participants (18%) referred patients to both Maxillofacial surgeons and Physical Therapist as combined mode of referrals, 1 dentist (1.6%) referred to Orthodontist and only single participant (1.6%) directly referred TMD patient to Physical Therapist. Sixteen of the dentists (26.2%) did not refer TMD patients to any other health care service provider as shown in Table.2.

Table.2 Responses of Participants regarding Knowledge	
N (%)	
Do you refer patients with TMD to other practitioners?	45 (73.8%)
<b>Referrals to health care providers</b> <ul style="list-style-type: none"> <li>• <i>Maxillofacial Surgeons</i></li> <li>• <i>Combine mode of referrals</i></li> <li>• <i>Physical Therapist</i></li> <li>• <i>Orthodontists</i></li> </ul>	33 (54.1%) 11 (18%) 1 (1.6%) 1 (1.6%)
<b>Patients symptoms for referral to physiotherapy</b> <ul style="list-style-type: none"> <li>• <i>Combined symptoms</i></li> <li>• <i>Masticatory muscle tenderness</i></li> <li>• <i>Neck pain</i></li> <li>• <i>Postural alteration</i></li> <li>• <i>Cervicogenic headaches</i></li> <li>• <i>Headaches</i></li> </ul>	13 (21%) 11 (18%) 5 (8.2%) 2 (3.3%) 1 (1.6%) 1 (1.6%)
Prior to this survey, were you aware that physiotherapist can treat patients with TMD by, for example, reeducating jaw movements and restoring masticatory muscle function?	33 (54.1%)
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 reeducation?	37 (60.7%)

Forty-three respondents (70.5%) perceived physical therapy to be an effective management for TMD on the other hand 18 respondents (29.5%) perceived physical therapy to be non-effective in treating TMD as illustrated in Figure2.



**Figure.2 Perceptions of Participants regarding effectiveness of Physical Therapy in treating TMDs**

Thirty-three participants (54.1%) referred patients to physical therapist, the most common reasons for referral of TMD patient to physical therapist included masticatory muscle tenderness headaches cervicogenic headaches combined symptoms sum up to 21%, masticatory muscle tenderness 18%, neck pain 8.2%, postural alterations 3.3%, headaches and cervicogenic headaches constitutes up to 1.6% and 1.6% respectively.28 practitioner did not

refer patient to physical therapist, common reason is that they feel there is no role of physical therapy and they did not know the role of physical therapy in TMD, 7 participants did not respond as illustrated in table 2.

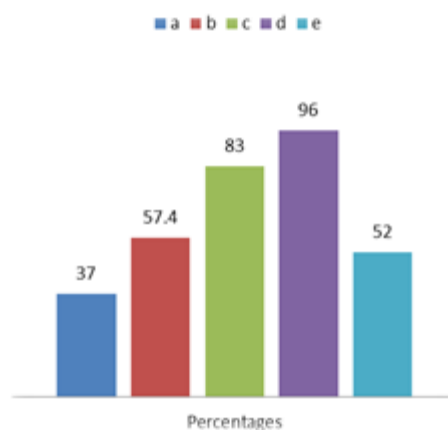
### ATTITUDE

The attitude of dentists towards the effectiveness of physical therapy in treatment of TMD is depicted in Table 3.

Table 3. Responses of participants regarding Attitude	
N (%)	
Do you think physiotherapy is an effective modality for TMD patients?	41 (67.2%)
Physiotherapy modalities regarded being effective	
• <i>Combined therapeutic modalities</i>	14 (23%)
• <i>Manual Therapy</i>	12 (19.7%)
• <i>Prescription of Jaw Exercises</i>	11 (18%)
• <i>Acupuncture</i>	2 (3.3%)
• <i>Ultrasound</i>	1 (1.6%)
Attribution of non-effectiveness of physiotherapy	
• <i>Lack of knowledge by dental practitioners</i>	15 (24.6%)
• <i>Lack of expertise of physiotherapist</i>	5 (8.2)

### PRACTICE

The reference rate to physical therapy treatment by dental practitioner is illustrated in Figure3.



\*a Can you refer directly into physiotherapy?

\*b Are physiotherapy services easily accessible?

\*c Do you prescribe exercises to patients?

\*d Would you be interested in learning more about the benefits of the collaborations with physical therapists to treat TMD patients?

\*e After participating in this survey, are you more likely to refer a patient with TMD to a physical therapist when needed?

### DISCUSSION

To the best of author's this is the first study to assess the knowledge, attitude and practices of dental practitioners in Karachi regarding PT treatment while managing TMD patients and benefits of collaborative approach while treating TMD pain self-administered questionnaire, 61 dental practitioners were inducted in this study out of which 37 were BDS, 19 were masters

and 5 were FCPS Maxillofacial surgeons. This survey takes information regarding the patient's referral, perception of physical therapy treatment effectiveness and dental practitioners' interest to obtain knowledge for treating the pain of TMD. Survey done in Iran supports that graduated dental practitioners have less education and less knowledge about TMD and orofacial pain<sup>15</sup>. The knowledge and perception of effectiveness of physical therapy in accordance with this survey results as 43 dental practitioners (70.5%) responded its effective in contrast to referral to physical therapy its very high, because only 33 (54.1%) dental practitioners referred patients for physical therapy. From the surveyed dentist only 28 participants' (45.9%) had never been able to refer the patients to physical therapy and did not had the knowledge of the benefits physical therapy can provide to the patients suffering from TMD. The most common reason for not referring the patients to physical therapy was that there is no need of physical therapy treatment (50.8%) the other reason was lack of knowledge of dental practitioners regarding the benefits of physical therapy in treating TMD pain (37.7%) and the remaining (11.5%) dental practitioners who did not respond, referred TMD patients to physical therapist. A research conducted by the16 report that dentist and physical therapist in USA referred 50% of his patients to physical therapist for the management of TMD<sup>16</sup>. Only 8 dental practitioners surveyed assess their TMD patients for neck pain, bad neck and head postures and cervicogenic headaches and refer them to physical therapy treatment. As the preceding evidences from the researches suggests there is interrelation between TMD pain and the existence of cervical spine dysfunction<sup>17, 18</sup>. In this study survey 11 dental practitioner out of 61 are refer their patients for the masticatory muscle tenderness, physical therapy treatment help in reducing pain by manual mobilization, soft tissue massage and intra oral mobilization before guiding the exercise to patients. The patients suffering from TMD will have good treatment prognosis if dental surgeons and physical therapists work together<sup>16</sup>. The most common referral reasons by the dentist to the physical therapist are the combine symptom including cervicogenic headache masticatory muscle tenderness and headache. The dental practitioners were asked prior to this survey were you aware that the physical therapy can treat TMD by re-educating jaw movements and restoring masticatory muscle function, 33 of the dental practitioners (54.1%) responded that they knew and 28 of the dental practitioners (45.9%) responded that they did not knew. They were also inquired regarding the evidence of effectiveness of oral exercises, manual therapy and postural reeducation in TMD management regarding that 39.3% respond in negative answers, and 60.7% showed the positive attitude but it does not mean that they will go for the multi-disciplinary approach in treating TMD. One of low rate of referral towards the physiotherapist TMD could be the insufficiency of securable physical therapists with proficient skill and experience. In accordance with the survey conducted in India it suggested that the positive attitude was found in treating TMDs in maximal of the TMD specialists and in dental surgeons. Attitude in the surveyed participants was directed by the experience gained over the years of practice not by the level of education and knowledge<sup>19</sup>. In this survey the in this survey attitude of dental practitioners towards the physical therapy being an effective modality for treating TMD patients was positive for 41 dental practitioners (67.2%) and negative for 20 dental practitioners (32.8%), out of that 23% were in the favors of combine therapeutic management. Systematic reviews support the incorporation of active jaw exercises, manual therapy and soft tissue relaxation techniques<sup>20</sup>. Prescription of jaw exercises were attributed with positive attitude by 18% of dental practitioners. Two systematic reviews concluded that acupuncture is positively efficacious in reducing the pain of TMD<sup>21,22</sup>. Ultrasound therapy, dental practitioners surveyed showed very minor positive attitude just next to negative towards its effectiveness the response rate was only 3.3%. In accordance with a research conducted in India suggested that ultrasound therapy reduces pain an increases mouth opening in TMD and should be considered a potent modality in treating TMDs<sup>23</sup>. Laser therapy, dental practitioner's surveyed showed negative attitude towards its effectiveness the response rate was 0%. According to meta-analysis low level laser

therapy produced positive effects on TMD by reducing pain and gaining functional mobility may be these results could be temporary<sup>24</sup>. The dental practitioners responded that 37.7% could directly refer patient suffering from TMD to physical therapist and 62.3% responded that they could not refer patient directly to physical therapy. The practice of prescription of jaw exercises by the dental practitioners were found to be very persistence in numbers 51 participants (83.6%) prescribed jaw exercises and only 10 participants (16.4 %) did not prescribed jaw exercises. A randomized control trail suggested that range of motion exercises were found to be effective with a physical therapy program<sup>25</sup>. The dental practitioners who responded (32.8%) with negative attitude give the reasons, lack of their own knowledge what physical therapy can offer and what are the benefits of physical therapy to patients suffering from TMD (24.6%) and other reason was lack of expertise, knowledge and experience of physical therapist while treating TMD. A survey conducted shows that the post-graduate training and specialized practice of physical therapist, promotes self- assurance in the management of TMD<sup>14</sup>. After participating in this survey 52.5% dental practitioners willing for physiotherapy treatment of TMD and 47.5% are respond in maybe they refer, while at the end of survey 96.7%are very keen and interested to learn about the collaboration effect of physiotherapy in TMDS ON THE other hand only 2% are shown no interest. Hence diagnosing and managing TMD is difficult so the collaborative approach between dental surgeons and physical therapists is necessary<sup>26</sup>.

## CONCLUSION

In conclusion, a large percentage of the dental practitioners and surgeons were not aware of the benefits of PT in managing TMD pain and suggested very minimal referral to physiotherapist for management of TMDs. This survey helped to increase the knowledge and change perception of surveyed dental practitioners in Karachi regarding importance and effectiveness of physical therapy and benefits from the collaborative approach to treat TMD. Almost all the participants in this survey were interested to increase their knowledge regarding benefits of PT while treating TMD in multidisciplinary approach for better medical care towards the patients. In future further studies should be conducted to assess the collaboration of physical therapist and dental practitioners and benefits form multidisciplinary approach to patients with TMD.

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