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KNOWLEDGE AND ATTITUDE OF PHYSICAL THERAPISTS FOR THE DIAGNOSIS AND TREATMENT OF TEMPOROMANDIBULAR JOINT DYSFUNCTION

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Article Info

Abstract

Background:
Physical-therapy play a crucial role in conservative treatment of temporo-mandibular joint dysfunction. Where it shows various physical-therapy interventions and their implementations to reduce the jaw pain, improve jaw movements, decreases inflammation and restore jaw functional mobility. Temporo-mandibular joint dysfunction (TMD) is a common condition that limits the mandibular joint movement such as opening and closing the jaw.

Objective:
The aim of this research is to assess the level of awareness regarding diagnosis and treatment of temporo-mandibular joint dysfunction among physical-therapist

Methodology:
Non-probability sampling techniques and cross-sectional method were both used in this research. This study lasted for six months and used a 169-person sample size determined by open Epi version 3. Data was collected from JSMU, JPMC, Dow ojha campus, PNS shifa, Patel hospital, Ziauddin hospital (north campus), NMC by using self-administered questionnaire to evaluate the knowledge and awareness about diagnosis and treatment of Temporomandibular joint dysfunction among the physical therapist. The data was figure out by SPSS 23.0 software.

Results:
According to the study physiotherapists working in Karachi hospitals have a good level of knowledge regarding basics of TMJ and its dysfunctions however there is a need to make more improvement in treatment approaches as mostly rely upon traditional methods.

Conclusion:
This research demonstrates that knowledge related to diagnosis and treatment of Temporomandibular joint dysfunction among the physical therapists.

Keywords:
Temporomandibular joint dysfunction, knowledge, attitude, prevalence, physical therapist.

INTRODUCTION

Temporomandibular joint possesses complex anatomy as compared to other joints in the body. Temporomandibular joint dysfunctions can involve the structures around temporomandibular joint; it can be muscles of mastication; ligaments and the joint itself can also get affected during such dysfunctions.[1] Inflammation in these structures can lead to temporomandibular joint dysfunction along with other clinical signs and symptoms. It can be acute or chronic depending on the leading cause. The most common symptoms experienced by patients of temporomandibular joint dysfunction includes, pain around the joint, pain in the muscles of mastication, radiating pain can also be felt in ear or can involve entire face, decreased TMJ range of motions and jaw locking.[2] These are some of the most common signs and symptoms told by a patient however symptoms also vary according to the cause, age, gender and other numerous factors. The magnetic resonance imaging signs and symptoms showed a strong relation of specific signs like osteoarthritis and effusion with age. However, no distinguishing relation was found between gender and MRI manifestations.[3]Temporomandibular joint dysfunctions can arise due to number of reasons, at times the underlying issues also become difficult to address. It can be due to disc displacement, prolonged clenching activity of jaw, stress or dentistry issues. Apart from all these factors postural issues are also under investigation for their relationship with TMJ dysfunction, however this correlation is still unclear.[4] Another study has also shown the relation of back pain with TMJ dysfunction incidence, especially during pregnancy this is why women of child bearing ages are more prone to get affected by temporomandibular joint dysfunction.[5]

The prevalence of TMJ dysfunctions has been witnessed across all age groups. It is not limited to certain age group; it can affect children, adolescents, adults and old age people. Apart from gender and age factors, postural issues, sport activities and stress factors are also being assessed for their correlation with the occurrence of temporomandibular joint dysfunctions.[6]

Temporomandibular joint dysfunction can be treated both conservatively and non- conservatively. Conservative ways of treating TMJ dysfunctions are numerous and in majority of cases conservative treatments manifest effective results.[7] Non- conservative measures include surgical procedures which are usually divided into two categories closed surgical procedures and open surgical procedures.[8] Conservative mode of treatments is numerous and mostly they are provided according to an individual patient condition. The non- surgical ways of treating temporomandibular joint dysfunctions include pharmacotherapy, physiotherapy, psychotherapy, acupuncture etc. [9] Pharmacotherapy involves usage of drugs and it usually involves symptomatic treatment. Psychotherapy is provided to patients with problems in behavior. Physiotherapy involves provision of manual therapy techniques along with therapeutic exercises which further involves strengthening exercises and exercises to increase range of motion. Physical therapy protocols focus on muscles, soft tissue structures and disc. [10]Apart from exercises TENS, laser therapy, ultrasound, cryotherapy, heat therapy, splits and joint mobilization techniques are also provided in physical therapy treatment. These all techniques are not applied at once to a patient. This They are catered according to the patient's condition and after the application of techniques the results are assessed, and this procedure determines the quality of every treatment applied.[11] Different researches have shown effective results regarding the physical therapy techniques in temporomandibular joint dysfunction.[12]

The treatment protocols followed by physical therapists have shown to be effective, still there is little to no role being played by physical therapists in this avenue. Usually, patients are treated through pharmacotherapy and conservative treatments but role of physiotherapy is neglected. This is because of certain factors like public unawareness about the role of physical therapists and unfortunately physical therapist themselves have no idea about their role in this realm. This further leads to an issue which is meager knowledge pf physical therapists regarding TMJ dysfunctions.[13] This research focuses on determining the knowledge physical therapist possesses regarding the treatment and diagnosis of temporomandibular joint dysfunctions. The research addresses the potential areas that require focus when it comes to dealing with patient with temporomandibular joint dysfunction as a physical therapist.[14] The results of the research also clearly indicate why dentists and oral surgeons do not refer patients to physical therapist.[15] This research provides an insight to the level of awareness among the physical therapists of Karachi regarding temporomandibular joint dysfunction diagnostic tests and treatment protocols. With this research not only knowledge of physical therapists can be determined but their role is more clearly conveyed to other professional and physical therapists themselves as well.[16]

METHODOLOGY

The study used a cross-sectional design to assess the knowledge and attitudes of physical therapists regarding temporomandibular joint (TMJ) diagnosis and treatment. Data was collected from physical therapists in several hospitals in Karachi, including PNS Shifa, Ziauddin Hospital (North Campus), Liaquat National Hospital, Jinnah Postgraduate Medical Center, National Medical Centre, and Patel Hospital. Both male and female physical therapists with at least one year of clinical experience were eligible to participate. The study was conducted over five months, from September to February 2023, following approval from Bahria University College of Physical Therapy's ethical committee. The sample size, calculated using OpenEpi, was 169 participants. Convenient sampling was employed due to time constraints, allowing the researcher to select participants based on availability. Inclusion criteria consisted of physical therapists working in clinical settings for at least one year. Exclusion criteria included academic physical therapists, technicians, house officers, and those unwilling to participate. Data was collected using a self-administered questionnaire divided into two sections. The first section gathered demographic information, including age, gender, education level, years of experience, and current workplace. The second section focused on knowledge of TMJ diagnosis and treatment, including manual therapy, exercises, massage therapy, and modalities. This approach aimed to assess the awareness and knowledge of physical therapists regarding TMJ dysfunction. The analysis of data was done through SPSS version 23.0 software.

RESULTS

A total of 169 healthcare Physical Therapists were recruited from six hospitals of Karachi. Table No. 1 presents the demographic details of the participants, including gender, age, highest degree of education, practicing year, current work place and TMJ dysfunction referral.

Table 1: Demographic characteristics related to Physical Therapist

Variables	**Frequency** (%)
Gender	
Male	58 (34.3%)
Female	111 (65.7%)
Age	
24-30E	128 (75.7%)
31-35	29 (17.2%)
36-40	4 (2.4%)
41-45	4 (2.4%)
46-50	4 (2.4%)
Highest degree of education	
Doctor of physical therapy	118 (69.8%)
Masters/ M.Phil.	50 (29.6%)
PHD	1 (0.6%)
Practicing years	
1-10	149 (88.2%)
11-20	11 (6.5%)
21-30	6 (3.6%)
More than 30	3 (1.8%)
Current working place	
Ziauddin hospital	27 (16.0%)
National medical Centre	23 (13.6%)
Patel hospital	9 (5.3%)
PNS Shifa	23 (13.6%)
Liaquat national hospital	21 (12.4%)
Civil Hospital	54 (32%)
Jinnah Hospital	12 (7.1%)
Dentist refer TMJ dysfunction cases to PT	68 (40.2%)
2-3	10 (5.9%)
4-5	91 (53.8%)
None	

This study involved 169 physiotherapists, with 58 (34.3%) males and 111 (65.7%) females. The majority of participants (75.7%) were in the 24-30 age group. Most physiotherapists (69.8%) had a Doctor of Physical Therapy (DPT) degree, while 29.6% held a Master's/M.Phil., and only 0.6% had a PhD.

In terms of experience, 88.2% had been practicing for 1-10 years, while only 1.8% had over 30 years of experience. The study included participants from seven hospitals in Karachi, with the highest representation from Civil Hospital (32%). Regarding TMJ dysfunction (TMD) referrals, 53.8% of physiotherapists reported receiving no referrals from dentists, while 40.2% received 2-3 cases. Table 2: represents the knowledge related to diagnosis and treatment of TMJ dysfunction among physical therapist

Table 2: questions related to diagnosis and treatment of TMJ dysfunction

Questions	Frequency (%)
1. Do you know about TMJ dysfunction? Yes No	 166 (98.2%) 3 (1.8%)
2. Do you know about the diagnostic test of temporomandibular joint? Yes No	 129 (76.3%) 40 (23.7%)
3. Do you evaluate or treat patient with temporomandibular joint dysfunction? Yes No	125 (74%) 44 (26%)
4. Do you distinguish whether pain is of muscular origin or jaw pain? Yes No	130 (76.9%) 39 (23.1%)

The above table indicates that **98.2%** physical therapist know about TMJ dysfunction. **76.3%** of participants are aware of the diagnostic tests for TMJ dysfunction, while **23.7%** lack knowledge about the tests used for its diagnosis and **74%** had experience evaluating or treating TMD. The table shows that **76.9%** distinguish between muscular or jaw pain. Figures 1 represents the knowledge towards diagnosis and treatment of TMJ dysfunction among physical therapist.

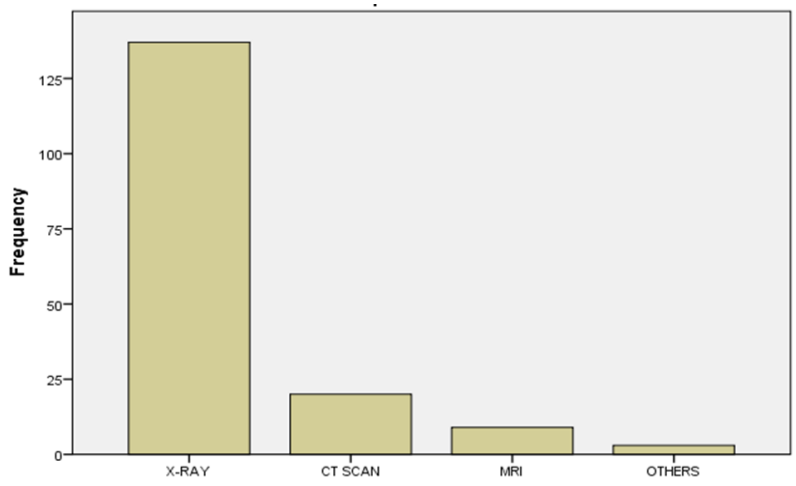

Figure no. 1: Which diagnostic imaging helps physiotherapist to make diagnosis or evaluate the patient

The above bar chart illustrates the frequency of diagnostic approaches chosen by physical therapists when evaluating patients. Among the 137 physical therapists surveyed, 81.1% opted for the X-ray approach. The CT scan method was selected by 11.8% (20 therapists), while only 1.8% (9 therapists) chose the MRI approach this bar chart depicts the frequency of modality choices by physical therapists based on their perceived effectiveness as a treatment option. According to the data, 49.1% (83 therapists) selected manual

therapy as an effective approach. Ultrasound was chosen by 17.2% (29 therapists), while 18.3% (31 therapists) opted for TENS. Other modalities, such as laser therapy, acupuncture, jaw perception, and exercises, were chosen less frequently compared to the aforementioned options as shown in figure no.2:

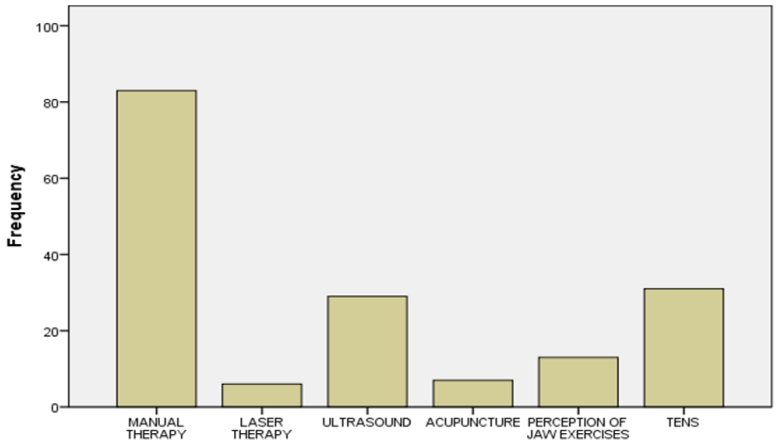

Figure no. 2: Which of the following modalities in your experience, do you regard as being effective?

DISCUSSION

The aim of our study was to see the knowledge of physical therapists in the field of TMJ dysfunctions. According to the results obtained all physiotherapists has a knowhow of basics of temporomandibular joint and its dysfunctions.[17]A total of 169 healthcare Physical Therapists were enlisted from six hospitals of Karachi which shows demographic details of the participants, including gender, age, highest degree of education, practicing year, current work place and TMJ dysfunction referral.[18]

In this study, 169 participants are included 58 (34.3%) were males and 111 (65.7%) were females. Majority of the participants belong 24-30 age group, around 128. 29 participants belong to the age group of 31- 35. Meanwhile rest of the age groups, 36-40, 41-45 and 46-50 had 4 participants each.

The working experience of 149 physiotherapists around 1-10 years which indicates that TMJ physios are slowly growing in the field of specialization. Meanwhile 11 of them have a working experience of 11 - 20 years. However, 6 of them have 21 -30 years of working experience. And only 3 participants have an experience of more than 30 years.Around 69.8% of participants hold the highest degree in physiotherapy; which makes it most common qualification in Pakistan and also increases the knowledge of musculoskeletal disorder such as TMJ dysfunction. [19]Meanwhile 29.6% physiotherapist pass in the field of M-PHIL and masters so that they can updated their profession as physiotherapist. Only 0.6% has the PHD degree which indicates that theoretical improvement in TMJ is under develop.

The collected data from physiotherapists working in seven different hospitals of Karachi. Two of the hospital; Jinnah and Civil are government hospitals. On the other hand, Ziauddin, National Medical Centre, Patel Hospital, PNS Shifa and Liaquat National Hospital are private sector. 27 physiotherapists belong to Ziauddin Hospital, 23 are working in NMC, 9 are practicing in Patel Hospital, 21 participants

work in Liaquat National, 54 are working in Civil Hospital and 12 physiotherapists are practicing in Jinnah Hospital

Majority of the physiotherapist, 91, are not getting any referrals from dentists. 68 of them are getting 2-3 patients referred from dentists meanwhile 10 of them are getting 4 to 5 patients referred from dentists.[20] The majority (98.2%) physiotherapist know about the TMJ dysfunction which shows that this problem is well diagnose in the field of physiotherapy. Moreover, only 1.8% don't know about TMJ dysfunction. 76.3% of participants are aware of the diagnostic tests for TMJ dysfunction, while 23.7% lack knowledge about the tests used for its diagnosis and 74% had experiences evaluating or treating TMD. Also 76.9% physiotherapist diagnosis the pain whether its muscular pain or jaw pain.Here are some comparisons with the previous study so according to the results of our study 81.1% of physical therapists use X-ray as the most reliable imaging to diagnose TMJ dysfunctions, 11.2% consider CT-scan as a reliable diagnostic tool and 5.3% consider MRI as most effective to diagnose TMJ dysfunctions.[1] According to the previous study in which evaluation was made by the efficacy of X-ray, MRI and CT-scan.[21] It was concluded in the study that no diagnostic imaging test is perfect in evaluating all the issues which is related to TMJ dysfunction. For instance, MRI is good at assessing the soft tissues while X-rays are good for assessing the bony structures which make up the joint.

In our study we also asked physical therapists about the most effective intervention for TMJ dysfunctions. Manual therapy is considered as the most effective intervention according to the experience of physical therapists in patients with TMJ dysfunction. [22]Ultrasound was chosen by 17.2% (29 therapists), while 18.3% (31 therapists) opted for TENS. Other modalities, such as laser therapy, acupuncture, jaw perception, and exercises, were chosen less frequently compared to the aforementioned options.

CONCLUSION

It is concluded from this study, the knowledge of physical therapists related to diagnosis and treatment of TMJ dysfunctions is good. However, the exposure or clinical experience to diagnose and treat TMJ dysfunctions is very less. More than half of the physical therapists get no referrals of patients from dentists, suffering with TMJ dysfunction. Given the result of this study, physical therapists possess knowledge to treat the TMJ dysfunctions and they should be taken on board by dental hospitals or at least patients with TMJ dysfunctions should be referred to them.

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