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To assess the approach of dental practitioners towards TMJ related pain and application of dry needling in managing TMJ pain

N.Mehmood[1], F.Zehra[2]

[1] Dr. Nisar Burni Dental Clinic
[2] Shed Hospital

Abstract

Objectives:

The objective of the study is to evaluate the approach of dental graduates toward TMJ-related pain and the application of dry needling in managing TMJ pain.

Methods:

A questionnaire was constructed, comprising 4 sections and 16 items in the semi-structured form, which are intended to assess the knowledge and approaches of general dentists regarding TMJ pain, conventional approaches to treat TMJ pain, and applications of dry needling to manage pain related to the TM joint. The questionnaire was valid, reliable, and self-administered, while most questions were based on the Likert scale. The mode of dissemination of questionnaires was both hard copies and online platforms. However, the target population was practicing dental graduates and the sample size was 184 with 95% C.I.

Results and Conclusion:

A majority (61.7%) agree that they are confident in diagnosing TMJ-related pain, though a significant portion (32.8%) remain neutral, indicating some uncertainty. When it comes to understanding the etiology of TMJ-related pain, 72.1% of respondents agree they are familiar, while 11.5% are neutral. However, 16.5% either disagree or strongly disagree, suggesting a gap in knowledge among some practitioners. , yet the adoption of dry needling faces significant barriers, including patient acceptance, cost, training limitations, professional resistance, and regulatory concerns. This indicates a need for targeted education and awareness efforts if dry needling is to be integrated into TMJ pain management.

Key Words:

Dry needling, TMJ pain, tmpds, myofascial pain

Introduction

Orofacial pain is a collection of disorders, including Temporomandibular Disorders (TMDs), Headaches, and Neuralgia. TMD is manifested by pain, clicking sounds, and reduction of jaw movement, muscle tenderness. It is also associated with other symptoms affecting another region such as headache, and ear-related symptoms (1). Myofascial pain is suspected in patients with pain in the masticatory muscles located in the preauricular area, temporal regions, or in the ear, with the existence of painful myofascial trigger points on palpation (2).

There are different types of orofacial pain, persistent idiopathic orofacial pain (temporomandibular pain or atypical Pain, burning mouth syndrome), neurovascular (tension-type headache, migraine, cluster Headache), neuralgias (post-traumatic neuralgia, trigeminal neuralgia) (3). Practitioners have employed dry needling to treat and control orofacial pain. A tiny needle, similar to an acupuncture needle, is introduced into the skin and muscle during trigger-point dry needling, an invasive treatment. Myofascial pain syndrome has

Corresponding Author:

Name: Dr. Nisha Mehmood

Affiliation: Nisar burni dental clinic

Email: Mehmoodnisha@gmail.com

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also been treated and managed using dry needling (3). The best results from dry needling occur when the needle is pushed deeply into the myofascial trigger point, which triggers a local twitch reaction (4). Breaking apart the trigger point is the goal of dry needling. According to Lined et al., the physiological mechanism of dry needling consists of a combination of peripheral effects, including supraspinal (i.e., endogenous opium system) and spinal (i.e., gate control) mechanisms. Brain impacts, including physiological or placebo mechanisms (5). Dry needling is a technique that is thought to engage the noradrenergic and serotonergic (5-HT) inhibitory systems, potentially reducing pain. Cagnie et al. postulated that dry needling stimulates the enkephalinergic inhibitory dorsal horn interneuron by activating the nociceptive fibers. It's unclear if these outcomes are due to electrical stimulation, needle manipulation, or both (6).

Simon J. et al, in the year of 2017 published an article where the importance of locating the myofascial trigger point within the muscles was highlighted as the effects of dry needling in treating orofacial pain. The video was published in this article to demonstrate the dry needling technique at the tensor fascia latae, extensor carpi radialis longus, and gastrocnemius muscles (7). All the myofascial trigger points were first labeled and then the needle was inserted into the myofascial trigger point to a depth of 10 to 100nm and remained there for about 10 to 20 seconds with the use of the piston technique. This technique showed a significant reduction in pain and improved functional results in patients. The usage of dry needling in clinical settings is increasing as it showed a strong positive effect in reducing pain and improving muscle strength (8)(9).

A case of a 29-year-old female with pain on the periauricular area of the left ear for 3 months which was also referring to the left temporal region. There was no swelling over the TMJ. On palpation, trigger points were revealed over her masticatory muscles. The patient was treated by Dry needling technique with a 25mm stainless steel needle. The lift and thrust method was used to elicit Local Twitch Response (LTR)(10). The first session lasted for about 10 minutes. On the second visit, a patient came with a 50% reduction in pain. On the third and last visit, a patient came with the complete resolution of pain, the mouth opening was normal, and there was the absence of tenderness on examination (11). This study revealed the importance of considering the treatment of myofascial pain with the dry needling technique, which is very cost-effective, easy to learn with proper training, and very minimally invasive treatment (12). Dry needling could be a promising therapy for the treatment of chronic muscle pain (myalgia) there are two types of dry needling one is superficial and the other is deep. To evaluate the effectiveness of DDN was the purpose of this study in the treatment of myalgias and other forms of temporomandibular joint disorder by monitoring the activity of the masseter muscle, bite force, mouth opening range, and symmetry, as well as changes in the position of the jaw after applying DDN (13)(14).

Several studies have suggested that dry needling is better than sham therapy and other interventions for pain pressure threshold but due to very low quality of evidence, we cannot recommend dry needling over sham therapy (15)(16).

Dry needling is a skilled procedure in which thin needles are inserted into the skin and stimulate the trigger points. There is a difference between dry needling and acupuncture, the goal of acupuncture is to restore the normal flow of life force it’s a treatment based on Eastern medical diagnosis. In contrast, dry needling is a Western medical philosophy. In dry needling inserted in trigger points and connective tissues for the management of neuromuscular pain and movement impairments. It’s a passive procedure because it does not involve any stretching of tissue, or restore or improve the physiologic homeostasis in deep soft tissues. Dry needling is a treatment of choice in myofascial pain syndrome (MPS), temporomandibular pain syndrome, migraine, and other orofacial pain. Its absolute contraindications are: the first trimester of pregnancy, consent denied by the patient, inadequate knowledge of the practitioner, scalp area of infants, etc (17)

A randomized clinical trial aimed to compare the efficacy of deep dry needling and superficial dry needling in patients with myofascial temporomandibular disorder related to masseter

muscle. A group of forty patients showed MTMD with trigger points. Dry needling was performed once per week for three weeks. The results showed that there is a significant reduction in pain, superficial dry needling showed better reduction as compared to deep dry needling (18).

The era of advancement in dentistry demands innovative approaches to manage orofacial pains with the least invasive procedures with maximal effectiveness. Myofascial pain and pains of orofacial origin are highly complex and are long-standing disorders that directly affect the quality of life of patients. Existing literature supports the utilization of dry needling in orofacial pain management thus inquiring knowledge and attitude of practicing dentist towards dry needling needs to be evaluated to ensure incorporation of this technique in their practice.

Objective

To evaluate the knowledge, attitude, and practices of dental practitioners towards dry needling in managing temporomandibular pain disorders.

Methodology

This was a cross-sectional study that involved practicing dental graduates and lasted for 6 months after getting ethical approval whilst the sample size was estimated to be 184 with 95% confidence intervals. The sampling technique was purposive sampling and the data was collected using a valid reliable questionnaire comprised of 16 questions divided into 4 sections, designed to assess the knowledge regarding TMJ pain, conventional approaches to treat TMJ pain, and applications of dry needling to manage pains related to TM joint. The questionnaire is valid and reliable and most of the questions were based on the Likert scale. The mode of dissemination of questionnaires was both hard copies and online platforms. However, the inclusion Criteria included practicing dental graduates, Post-graduate trainees, and dental officers posted in the oral medicine and Oral and maxillofacial surgery department, whilst undergraduates, non-practicing dental surgeons, House officers, and those who voluntarily denied participating in the study were excluded from the study.

Results

This study shows that the sample is comprised of female (83.6%) and male (16.4%) participants. Most hold graduate (50.3%) or postgraduate (44.3%) degrees. A majority (55.7%) have over five years of clinical experience, while 33.3% have less than three years. This indicates a workforce that is largely experienced, with a mix of early-career and seasoned professionals Table 1.

Table 1: Demographic Characteristics

Demographic Characteristics	n	%
Gender		
Female	153	83.6
Male	30	16.4
Qualification		
Graduate	92	50.3
Post-graduate	81	44.3
Resident	10	5.5
Clinical Experience		
3 to 5 years	20	10.9
less than 3 years	61	33.3
More than 5	102	55.7

A majority (61.7%) agree that they are confident in diagnosing TMJ-related pain, though a significant portion (32.8%) remain neutral, indicating some uncertainty. When it comes to understanding the etiology of TMJ-related pain, 72.1% of respondents agree they are familiar, while 11.5% are neutral. However, 16.5% either disagree or strongly disagree, suggesting a gap in knowledge among some practitioners (Figure 1). Regarding treatment options for TMJ-related pain, 83.6% of respondents agree they are knowledgeable, and 10.9% strongly agree. Only a small percentage (5.5%) remain neutral, indicating that most practitioners feel equipped with treatment knowledge. Most respondents feel confident in diagnosing and managing TMJ-related pain, but familiarity with dry needling is low, with minimal hands-on experience. TMJ cases are commonly encountered in practice, yet the adoption of dry needling faces significant barriers, including patient acceptance, cost, training limitations, professional resistance, and regulatory concerns. This indicates a need for targeted education and awareness efforts if dry needling is to

be integrated into TMJ pain management as shown in Table 2.

Most commonly used treatment modalities selected were use of medication including muscle relaxant and NSAIDs followed by physical therapy as shown in figure 2

Table 2: Knowledge of dental practitioners regarding TMJ-related pain and dry needling application.

Characteristics	n	%
Confidence in diagnosing TMJ-related pain		
Agree	113	61.7
Neutral	60	32.8
Strongly Agree	10	5.5
Familiarity with the aetiology of TMJ-related pain		
Agree	132	72.1
Disagree	10	5.5
Neutral	21	11.5
Strongly agree	10	5.5
Strongly disagree	10	5.5
How frequently do you encounter patients with TMJ-related pain in your practice?		
Frequently	50	27.3
Occasionally	103	56.3
Rarely	20	10.9
Very frequently	10	5.5
Familiarity with the concept of dry needling for TMJ pain management?		
Maybe	10	5.5
No	111	60.7
Yes	62	33.9
Have you ever performed/observed dry needling procedure for TMJ pain management in your practice?		
No	173	94.5
Yes	10	5.5
Possible challenges do you anticipate in incorporating dry needling into your practice		
Acceptance and education of patients	102	32.4
Colleagues' opposition	50	15.9
Costs of equipment and supplies	61	19.4
Insufficient training time	61	19.4
Legal and regulatory issues	41	13.0

Figure1: Knowledge about treatment modalities

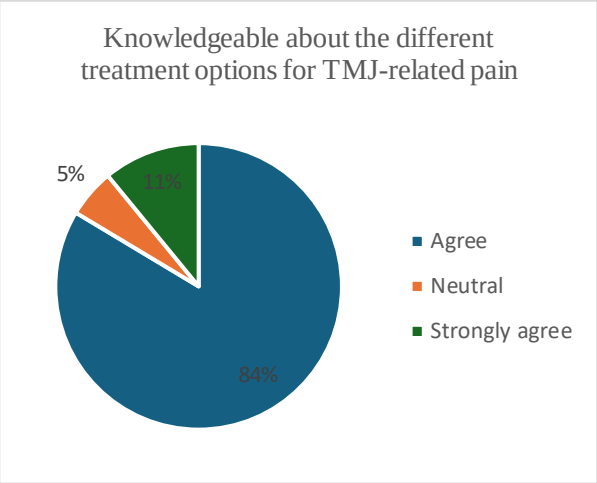
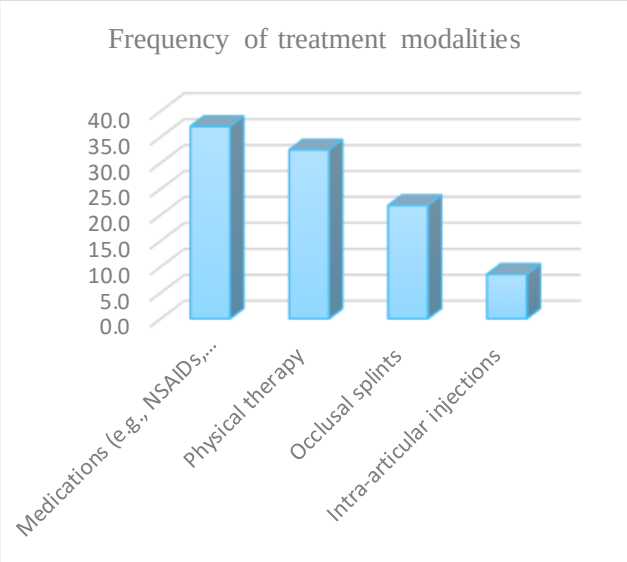


Figure2: Treatment modalities preferred for managing chronic TMJ-related pain.



Discussion

The current study offers important new information on how dentists diagnose and treat TMJ pain, especially when using dry needling. According to the demographic data, the workforce is highly qualified and primarily female (83.6%), with the majority of participants having either graduate (50.3%) or postgraduate (44.3%) degrees. Furthermore, a sizable percentage (55.7%) had more than five years of clinical experience, indicating that the study's conclusions represent the viewpoints of seasoned professionals.

According to the findings, most practitioners (61.7%) are confident in their ability to diagnose

TMJ-related discomfort, yet a sizeable percentage (32.8%) express some hesitancy. With 72.1% of participants stating that they understood the reasons for TMJ pain, there is a comparatively high level of familiarity with its etiology; nevertheless, 16.5% of people disagreed or strongly disagreed. This implies that there may be a knowledge gap among some practitioners, which could affect how well diagnoses and treatment plans work. With 83.6% of respondents agreeing and 10.9% strongly agreeing that they are aware of treatment alternatives, there is a greater degree of confidence in treatment knowledge (19).

Although 56.3% of dentists report seeing TMJ-related pain infrequently, 27.3% of practitioners report seeing it frequently, suggesting that TMJ-related pain is a common concern in dental practice. Physical therapy and medicine (such as muscle relaxants and NSAIDs) are the most often used treatment techniques, indicating a conservative and non-invasive approach to TMJ pain management. These results are consistent with earlier research showing that the major treatments for TMJ issues continue to be medication and physical therapy(20).

Even though TMJ-related discomfort is well understood and managed, most dentists are still not familiar with the idea of dry needling. Of those surveyed, 60.7% said they knew nothing about dry needling, while only 33.9% said they were familiar with it. Furthermore, only 5.5% of people have seen or done dry needling firsthand, making it incredibly uncommon. The novelty of dry needling in dental practice, a lack of training opportunities, and limited educational exposure may all be contributing factors to this unfamiliarity (21).

Even though TMJ-related discomfort is well understood and managed, most dentists are still not familiar with the idea of dry needling. Of those surveyed, 60.7% said they knew nothing about dry needling, while only 33.9% said they were familiar with it. Patient acceptability and education were found to be the biggest obstacles to the integration of dry needling in general practice (32.4%), indicating that misunderstandings or concerns regarding the process may prevent its uptake. The expense of supplies and equipment (19.4%), a lack of training opportunities (19.4%), and resistance from coworkers (15.9%) are further noteworthy challenges.

A survey study conducted in 2023 amongst dental students regarding their level of satisfaction with the mode of knowledge provided regarding acupuncture and dry needling for pain management in the oro-facial region, the results resonated with the current study that inclusion of demonstrations based lectures increase the confidence and level of satisfaction amongst dental graduates(22). Several clinical studies suggested the effectiveness of dry needling when compared to placebos and conventional treatments which enlightens its significance and the need for reinforcement of new teaching methodologies to instill knowledge and skills amongst graduates to make pace with growing innovation and treatment modalities (23).

Conclusion

This study emphasizes the necessity of better instruction and training in TMJ-related pain management and complementary therapies like dry needling. There is still a significant knowledge gap in dry needling, even though the majority of practitioners are comfortable diagnosing and treating TMJ issues. Integrating dry needling into standard dentistry practice requires addressing obstacles such as patient acceptance, training constraints, and regulatory issues. Future studies should concentrate on assessing dry needling's clinical efficacy and devising plans to increase both patients' and dentists' acceptance of the procedure.

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Dr. Nisha Mehmood: Conception and Design of work, drafting.
Dr. Faiza Zehra: Data collection and provide critical evaluation for intellectual context.