

Determine the Level of Awareness and Current Practices for TMJ Dysfunction among Dentists in Haryana: A Cross-Sectional Study

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ABSTRACT

Purpose: TMD (temporomandibular joint dysfunction) is a complex condition characterised by pain, crepitus, and limited movement. It can be caused by imbalanced activity, muscular spasms, or overuse of the jaw muscles. The role of PT in TMD treatment was discovered to be unknown among Haryana dentists. As a result, the study sought to determine if dentists were aware of physiotherapy care of TMD.

Method: A total of 65 dentists participated in this cross-sectional study. The information was gathered in Haryana, India. A self-prepared validated questionnaire and a consent form were utilised. The data was statistically analysed, and descriptive analysis using pie charts and bar graphs was completed.

Results: Physiotherapy was considered by 89 % of dentists in our survey as a treatment option for TMD. Fewer dentists were aware that physiotherapy aids in strengthening jaw muscular strength and coordination, whereas a greater proportion were aware that physiotherapy aids in pain treatment, relaxation, stiffness minimization, and restoration of normal mobility and function.

Conclusions: According to the findings of our study, even though a high majority of dentists who responded to the survey were aware of the benefits of PT in treating persons with TMD. As a result, dentists must be educated about the role of physiotherapy in the treatment of TMD patients in order to encourage them to send their patients to physiotherapists. PTs, on the other hand, must work closely with dentists when treating patients with TMD.

Keywords: Temporomandibular joint disorders; Dentists; Physiotherapy; Awareness

INTRODUCTION

Temporomandibular (TM) joint is one of the most frequently used and mobile joints in the body.^[1] Temporomandibular joint and muscle disorders, abbreviated "TMJ," are a group of illnesses characterised by pain and dysfunction in the jaw joint and the muscles that control jaw movement. The temporomandibular joint

joins the mandible, or lower jaw, to the temporal bone, which is located on the side of the head. The temporomandibular joint is distinct from the rest of the body's joints. This joint is one of the most complex in the body due to the combination of hinge and sliding actions. Stress, tension, worry, and depression are among psychosocial variables that can lead to temporomandibular joint disorders.



There are three types of conditions.

- 1: Myofascial pain is characterised by discomfort or pain in the muscles that govern the function of the jaw.
- 2: Internal joint derangement includes a dislocated disc, a dislocated jaw, or condyle damage.
- 3: Arthritis is a term used to describe a set of degenerative/inflammatory joint conditions that can affect the temporomandibular joint.

TMDs are a large set of clinical abnormalities affecting the masticatory muscle, the temporomandibular joint, surrounding bone and soft tissue components, and combinations of these difficulties.

The prevalence of TMD is thought to be greater than 5% of the population. Patients with TMD symptoms show across a wide variety of ages, with a peak prevalence between the ages of 20 and 40. TMD symptoms are more common in women than in males. Contrary to the known increased health risk in postmenopausal women of conditions such as heart disease and stroke, women tend to develop TMD during their premenopausal years.^[2] The causes for the sexual disparity in TMD prevalence are unclear, however some have suggested a hormonal link. Elevated levels of estrogen have been found in patients with TMD.^[3] TMD is assumed to be a complex process caused by muscle hyperfunction or parafunction, traumatic traumas, hormonal factors, and joint articular abnormalities.

TMJ issues can cause a range of symptoms. The most frequent symptom is pain, particularly in the chewing muscles and/or jaw joint. Other likely symptoms include:

- 1: Radiating discomfort in the face, jaw, or neck
- 2: Jaw muscle stiffness
- 3: Jaw mobility is restricted or locked.
- 4: When opening or shutting the mouth, there is a painful clicking, popping, or grating in the jaw joint.
- 5: A shift in the way the upper and lower teeth fit together

TMD is classified into two types: articular and nonarticular diseases. These illnesses are known as intracapsular and extracapsular disorders, respectively. The majority of nonarticular diseases manifest as myofascial pain in the masticatory muscles. Indeed, myofascial pain accounts for more than half of all TMD cases. Chronic illnesses such as fibromyalgia, muscular tension, and myopathies are examples of nonarticular ailments. Myofascial pain and dysfunction are theorized to arise from clenching, bruxism, or other parafunctional habits. The result is masticatory musculature strain, spasm, pain, and functional limitation.^[4] Emotional stress also predisposes to clenching and bruxism, which contributes to myofascial pain.^[5]

Goals of treatment

1. Decreasing joint pain
2. Increasing joint function and opening
3. Preventing further joint damage
4. Improving overall life quality and lowering disease-related morbidities

TMJ osteoarthritis and internal derangement treatment may be split into three basic categories: noninvasive, minimally invasive, and invasive management.

Physicians have used various types of splints since the eighteenth century for the treatment of TMJ disorders.^[6] Splints are now one of the most frequent in-office first treatments for TMD-related discomfort. Splints have been assumed to act by unloading the condyle, so preserving the TMJ and articular disc from degeneration and excessive articular strain since their beginnings.

In the treatment of articular disc and TMJ diseases, pharmacologic therapy, in conjunction with other therapeutic techniques, frequently plays an essential role.

Pharmacotherapy may be separated into two basic purposes.

1. Treatment of the underlying disease process
2. Relief of disease-related symptoms such as pain and swelling

Different therapeutic solutions can be injected directly into the TMJ space and allow for the targeted treatment of inflammation and joint degeneration.^[7]

Arthrocentesis and arthroscopy are two minimally invasive procedures utilised in patients who have failed to respond to more conservative therapy options. Oftentimes, they are combined with immediate postoperative intra-articular injections and the use of occlusal splints, pharmacotherapy, and physical therapy during the recovery period.^[8]

TMJ arthroplasty involves the reshaping of the articular surface to remove osteophytes, erosions, and irregularities found in osteoarthritis refractory to other treatment modalities.^[9]

TMJ replacement is primarily meant to restore form and function, with pain alleviation being a secondary benefit.

In the outpatient context, physical therapy is widely utilised to treat musculoskeletal discomfort, reduce inflammation, and improve oral motor function. Physical therapy is often used in conjunction with other treatments for TMJ issues.

Manual therapy, postural exercises, muscle stretching, and strengthening exercises are some of the techniques used.

Passive and active stretching of muscles or range-of-motion exercise are performed to increase oral opening and decrease pain.

It goes up a dry or moist heat/cold pad directly to the afflicted area at 20-minute intervals. Inflammation and TMJ hypomobility are treated with it in combination with exercise therapy.

It is hypothesized to increase the creation of endorphins, serotonin, and acetylcholine in the central nervous system, or it may function as a noxious stimulus to relieve pain. Treatments involve placement of needles in the face and hands and are typically given weekly for a total of 6 week.

NEED OF STUDY

To determine the level of awareness and current practices for TMJ dysfunction among dentists in Haryana. Physiotherapy department in TMJ joint dysfunction, so awareness of due same among dentist need to be check as they proud first line of reduce TMJ joint PT, so a survey is conducted on same.

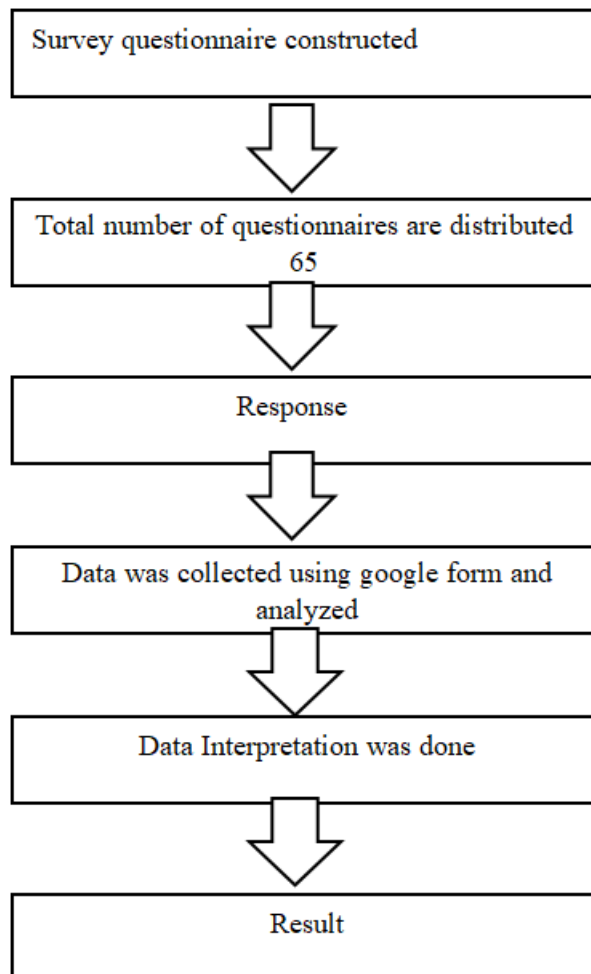
MATERIAL & METHOD

The present study was designed as a cross-sectional online survey aimed at assessing awareness and current physiotherapy practices for temporomandibular joint (TMJ) dysfunction among dentists in Haryana. The sample size for the study was calculated using the formula $n = (z^2) p (1 - p) / d^2$, where the level of significance (z) was taken as 1.96, margin of error (d) as 0.05, and prevalence (p) as 0.05 based on previous studies, resulting in a final sample size of 65 participants. The study was conducted over a period beginning from 1st August 2021 until the end of the study duration. A convenience sampling technique was employed to recruit participants.

Dentists aged between 25 to 50 years, including both males and females, who had access to an online platform were included in the study. Those who were not registered dentists or were unwilling to participate were excluded. Participants were recruited through online means, and the study utilized a structured questionnaire developed after an extensive review of relevant literature. The questionnaire was designed using Google Forms and underwent content validation through online methods. Additionally, the phrasing and sequencing of questions were reviewed and validated by experts in the field of physiotherapy to ensure clarity and relevance.

The survey questionnaire included demographic details such as age and email address of the participants. The finalized questionnaire was distributed via a link shared on social media platforms like WhatsApp and email, making it cost-effective, time-efficient, and easily accessible. Data collection was carried out entirely through this online method, and responses were automatically recorded in Google Forms. The collected data were then analyzed using Google Forms' built-in analytical tools and subsequently represented in the form of graphs and pie charts for better interpretation.

FLOW CHART OF PROCEDURE



RESULT

Participants' Demographics Data

A total of 65 dentists completed the survey (response rate 100%). The mean age of the participants was 30 years with a range of 21 to 39 years, and 29 of the participants (44.6%) were male and 36 participants (55.4%) were female. 86.2% of the participants (56) had their professional bachelor's doctoral degree, 13.8% (9) had a master's degree. Participants were from the Haryana India.

Awareness Data

58 participants (89.2%) agreed that physiotherapy can help in the treatment of TMD. 32 participants (49.2%) believe that TMD condition worsens without physiotherapy treatment, whereas 14 participants (21.5%) dispute that TMD condition worsens without physiotherapy treatment. 56 respondents (86.2%) reported that disc derangement can induce TMD clinking, while 2 participants (3.1%) reported that disc derangement cannot produce TMD clinking. 37 participants (56.9%) stated that measuring mouth opening is a reliable approach to diagnose TMD, while 9 participants said that measuring mouth opening is not a reliable way to diagnose TMD. Examination of the masticatory muscles is a part of TMD diagnosis for 58 respondents (89.2%), whereas

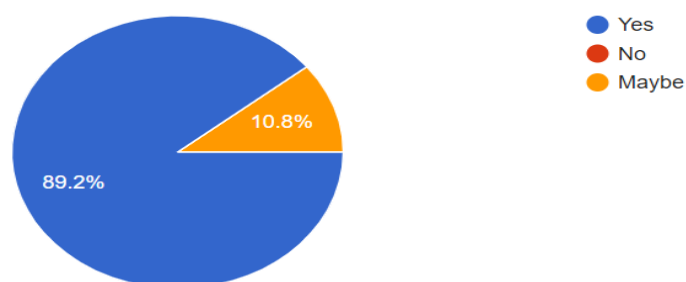
examination of the masticatory muscles is not a part of TMD diagnosis for 4 participants (6.2%). Physiotherapy is an effective treatment for TMD, according to 42 participants (64.6%).

Treatments Data

Relaxed jaw exercises are possible to treat TMD according to 49 participants (75.4%), while relaxed jaw exercises are not useful to cure TMD according to 3 participants (4.6%). Goldfish exercises (half / full opening) can be used to treat TMD, according to 40 participants (61.5%), while Goldfish exercises (half / full opening) cannot be used to treat TMD, according to three participants (4.6%). 32 participants (49.2 %) reported using Chin tuckes to treat TMD, while 9 participants (13.8 %) reported not using Chin tuckes to treat TMD. Resisted (mouth opening/closing) exercise was reported to be used to cure TMD by 36 participants (55.4%), while resisted (mouth opening/closing) exercise was not reported to be used to cure TMD by 8 participants (12.3%). Occlusal splints are required for TMD therapy among 46 participants (70.8%), while occlusal splints are not required for TMD treatment for 3 participants (4.6%). Acupuncture or needling is used to treat TMD by 24 participants (36.9%), whereas acupuncture or needling is not used to treat TMD by 12 participants (18.5%). Manual therapy is an effective treatment strategy in TMD, according to 43 participants (66.2%), while it is not effective in TMD, according to 5 participants (7.7%). Postural exercise is effective in managing TMD therapy for 40 participants (61.5%), while postural exercise is not effective in managing TMD treatment for 10 respondents (15.4%). Stretching and strengthening exercises are feasible to treat TMD, according to 47 participants (72.3%), whereas stretching and strengthening exercises are not possible to cure TMD, according to 2 participants (3.1%).

1. Do you think physiotherapy can help with TMD?

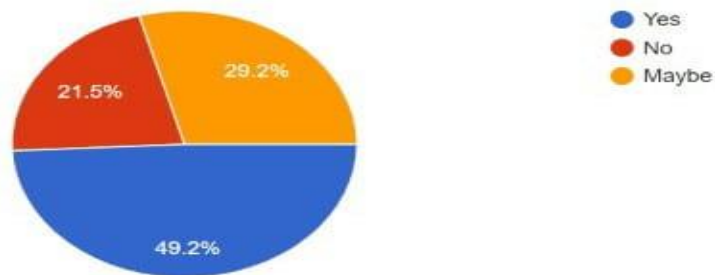
65 responses



Physiotherapy helps with TMD, according to 89% of participants.

2. Is it possible for TMD condition to increase without physiotherapy?

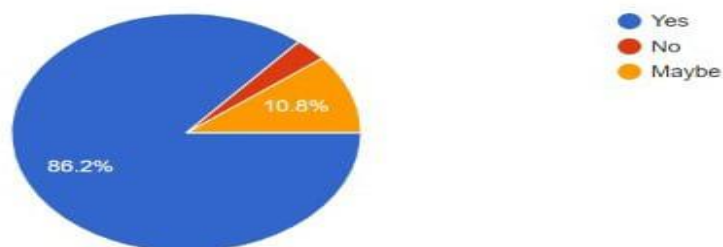
65 responses



TMD symptoms are worsening without PT treatment, according to 49% of respondents.

3. Did disc derangement can cause clicking of TMJ?

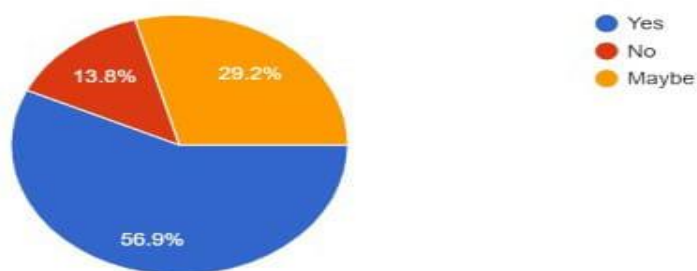
65 responses



TMJ clicking can be caused by disc derangement, according to 86% of respondents.

4. Do you consider that measuring mouth opening is a reliable way to diagnose TMD?

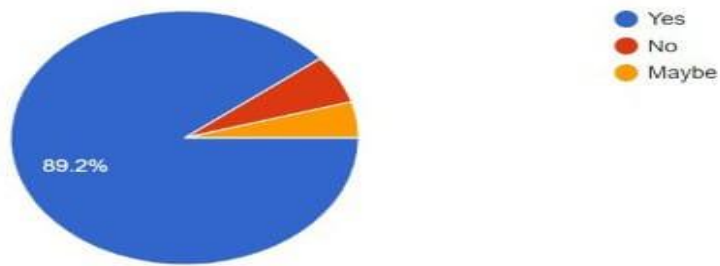
65 responses



Measuring mouth opening is a reliable approach to diagnose TMD, according to 57% of participants.

5. Is it necessary to examine the masticatory muscles as part of a TMD diagnosis?

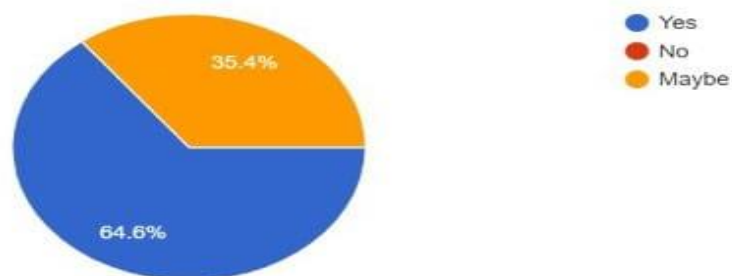
65 responses



Examining the masticatory muscles as part of a TMD diagnosis is agreed on by 89 % of participants.

6. Do you agree physiotherapy is effective in the treatment of TMD?

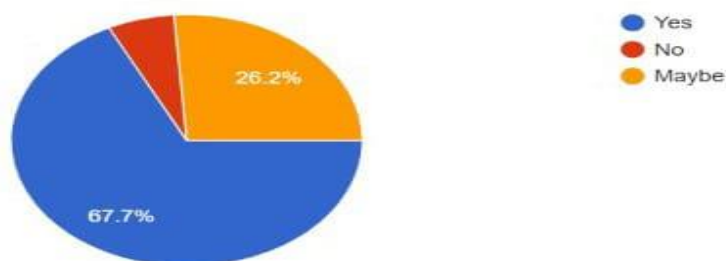
65 responses



Physiotherapy is an effective treatment for TMD, according to 64% of participants.

7. Do occlusal splints have to be used during TMD treatment?

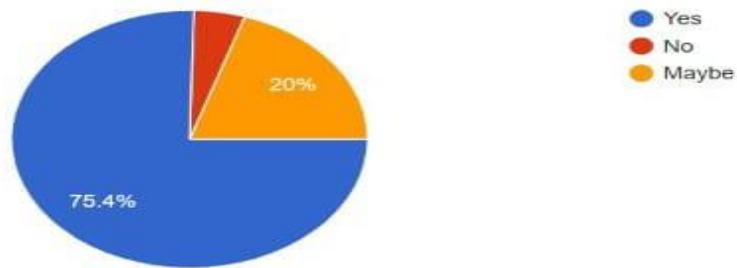
65 responses



Occlusal splints should be used during TMD treatment, according to 67% of participants.

1. Is it possible to treat TMD with relaxed jaw exercises?

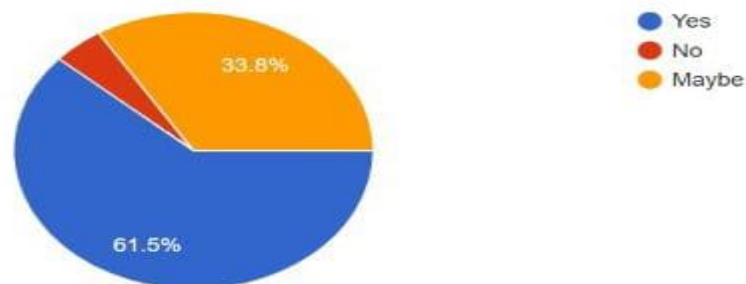
65 responses



TMD can be treated with relaxed jaw exercises, according to 75% of participants.

2. Is it possible to treat TMD using Goldfish exercises (half / full opening)?

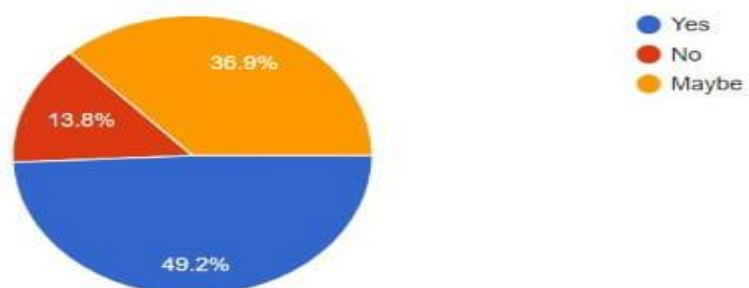
65 responses



Goldfish exercises can be used to cure TMD, according to 61% of participants.

3. Can Chin tucks are used to treat TMD?

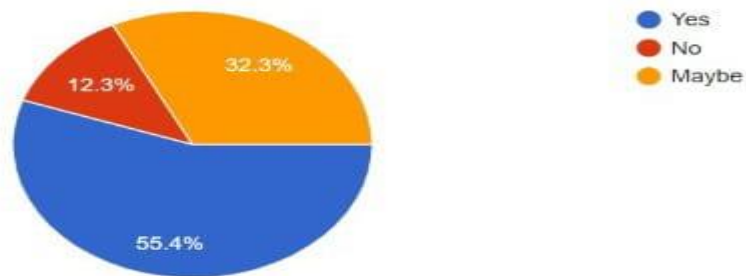
65 responses



Chin tucks are used to treat TMD, according to 49 % of participants.

4. Is it possible to cure TMD with resisted (mouth opening/closing)?

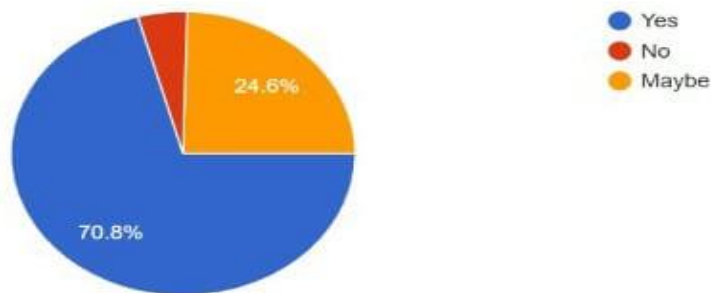
65 responses



Resisted (mouth opening & closing) TMD can be cured, according to 55 % of participants.

5. Are occlusal splints required for TMD treatment?

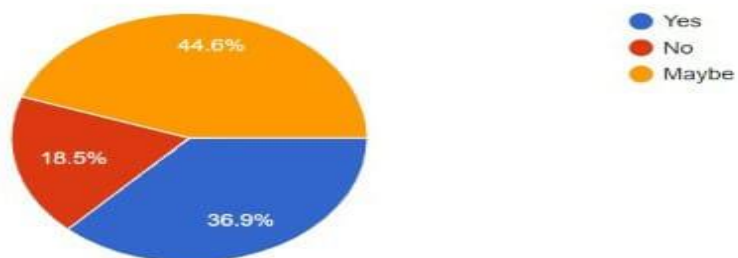
65 responses



Occlusal splints are essential for TMD treatment, according to 71% of participants.

6. Is it possible to treat TMD with acupuncture or needling?

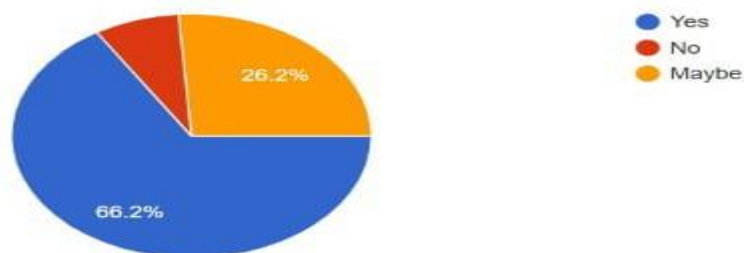
65 responses



TMD can be treated with acupuncture or needling, according to 36% of participants.

7. Is manual therapy effective in the treatment of TMD?

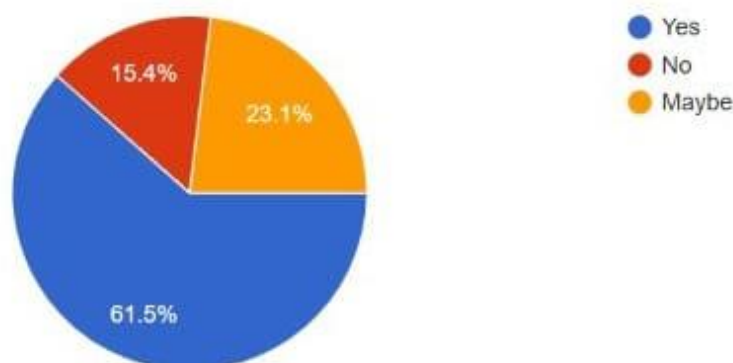
65 responses



Manual therapy is useful in the treatment of TMD, according to 66% of participants.

8. Is it effective to manage TMD with postural exercises?

65 responses



Postural exercises are important in managing TMD, according to 61% of participants.

TMD can be cured with muscular stretching and strengthening exercises, according to 72% of participants.

DISCUSSION

One of the most commonly used and movable joints in the body is the temporomandibular (TM) joint. TMJ (temporomandibular joint and muscle disorders) is a set of diseases marked by discomfort and dysfunction in the jaw joint and the muscles that regulate jaw movement. The mandible, or lower jaw, is connected to the temporal bone, which is placed on the side of the head, by the temporomandibular joint. The temporomandibular joint is different from the other joints in the body. Because of the combination of hinge and sliding motions, this joint is one of the most complicated in the body. Psychosocial factors such as stress, anxiety, worry, and sadness can all contribute to temporomandibular joint issues.

The present study was conducted to determine the level of awareness and current practices for TMJ dysfunction among dentists in Haryana.

TMD treatment is tough and involves specialised knowledge as well as exercises to strengthen specific muscle groups. We discovered that the majority of dentists agree that disc derangement can induce TMD clicking in this study. In the year 2020, M.P. Santhosh Kumar discovered that disc condyle dysfunction was the most common type of TMD in both men and women. TMD primarily affects men between the ages of 31 and 40. As a result, non-invasive treatment techniques might be recommended as the first line of TMD treatment.

Exercise and manual therapy are used to enhance muscular coordination, relax tense muscles, and build muscular strength in people with TMD. We discovered in our survey that nearly half of the participants believe their TMD condition will worsen without PT treatment. According to a 2012 study by Arif Rashid, nearly half of those who did not believe physiotherapy was useful nevertheless prescribed jaw exercises, whereas over 10% of those who did believe jaw exercises were effective did not prescribe them.

Acupuncture's exact mechanisms of action are unknown, but they may include the release of endorphins, serotonin, and acetylcholine in the central nervous system. In our study, 44 percent of the participants agreed that acupuncture can help with TMD treatment. According to a 2012 study by Helen Cowgill, 41% of consultants who thought physiotherapy was useful chose acupuncture as an effective treatment for TMD. Other procedures (such as jaw exercises, manual therapy, and ultrasound) were found to be more helpful by a larger percentage of these consultants. TMD refers to a group of disorders that affect the temporomandibular joint (TMJ), masticatory muscles, and other structures in the mouth. In our research, we discovered that 90% of respondents believe that physiotherapy can help with TMD. According to a survey done by Nigel Shaun Matthews in 2012, more than a quarter of respondents did not believe physiotherapy was an effective treatment for patients with TMD, and 41% of these consultants believed this was due to physiotherapists' lack of understanding or skill.

LIMITATIONS OF THE STUDY

- Sample taken from only one state
- Small sample size

CONCLUSION

According to the findings of our study, even though a high majority of dentists who responded to the survey were aware of the benefits of PT in treating persons with TMD. As a result, dentists must be educated about the role of physiotherapy in the treatment of TMD patients in order to encourage them to send their patients to physiotherapists. PTs, on the other hand, must work closely with dentists when treating patients with TMD.

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