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**RESEARCH**

# Comparison of the placebo effect of kinesio taping and dry needling in patients with myofascial pain syndrome

## Miyofasiyal ağrı sendromlu hastalarda kinezyo bantlama ve kuru iğnelemenin plasebo etkisinin karşılaştırılması

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**Abstract**

**Purpose:** This study assessed the effectiveness of affordable, easy-to-apply kinesiology taping and dry needling for myofascial pain syndrome (MPS) in the orofacial region.

**Materials and Methods:** Forty-six patients diagnosed with MPS were randomly assigned to one of three groups: kinesiology taping (n = 15), dry needling (n = 16), or sham dry needling (n = 15). Evaluations were conducted at baseline, Day 1, Week 3, and Month 3. Assessment tools included the Visual Analog Scale (VAS), goniometric mouth opening, Beck Depression Inventory (BDI), and the 36-Item Short Form Survey (SF-36).

**Results:** All groups demonstrated a reduction in pain over time. VAS scores decreased from 6.26 to 4.42 in the kinesiology taping group, from 6.10 to 4.14 in the dry needling group, and from 5.75 to 4.20 in the sham group. Maximum mouth opening increased in all groups by Month 3. For example, the kinesiology group improved from 29.53 mm to 31.40 mm. However, the intergroup differences were not statistically significant. Significant improvement was observed in SF-36 physical function scores in both treatment groups compared to the sham group at Week 3. Depression levels (BDI scores) increased significantly in the kinesiology taping group, rising from 53.86 to 65.46. In contrast, the dry needling and sham groups showed more stable scores.

**Conclusion:** Both kinesiology taping and dry needling were effective in reducing pain. They also improved quality of life and physical function in patients with MPS. However, dry needling was associated with a smaller increase in depression levels following treatment. These findings support the clinical use of both techniques as viable treatment options for MPS.

**Keywords:**. Myofascial pain syndrome, kinesiology taping, dry needling, depression, orofacial pain

**Öz**

**Amaç:** Bu çalışma, orofasiyal bölgede miyofasyal ağrı sendromu (MPS) olan hastalar için uygun maliyetli ve kolay uygulanabilir tedavi yöntemleri olan kinezyolojik bantlama ve kuru iğnelemenin etkinliğini değerlendirmiştir.

**Gereç ve Yöntem**: Miyofasiyal ağrı sendromu tanısı almış toplam 46 hasta rastgele üç gruba ayrılmıştır: kinezyo bantlama (n=15), kuru iğneleme (n=16) ve yalancı kuru iğneleme (n=15). Değerlendirmeler tedavi öncesi, tedaviden sonra 1. gün, 3. hafta ve 3. ayda yapılmıştır. Ağrı düzeyi Görsel Analog Skala ile, ağız açıklığı gonyometrik ölçüm ile, depresyon düzeyi Beck Depresyon Ölçeği ile ve yaşam kalitesi 36 Maddelik Kısa Form Sağlık Anketi ile değerlendirilmiştir.

**Bulgular:** Tüm gruplarda zamanla ağrı düzeyinde azalma gözlenmiştir. Görsel Analog Skala puanları kinezyo bantlama grubunda 6.26'dan 4.42'ye, kuru iğneleme grubunda 6.10'dan 4.14'e, yalancı kuru iğneleme grubunda ise 5.75'ten 4.20'ye düşmüştür. Ağız açıklığında her üç grupta da artış izlenmiştir ancak gruplar arası fark istatistiksel olarak anlamlı bulunmamıştır. Üçüncü haftada, tedavi gruplarında 36 Maddelik Kısa Form Sağlık Anketi fiziksel işlev puanlarında anlamlı iyileşme saptanmıştır). Beck Depresyon Ölçeği skorları kinezyo bantlama grubunda anlamlı bir artış göstermiştir (53.86'dan 65.46'ya).

**Sonuç:** Kinezyo bantlama ve kuru iğneleme, miyofasiyal ağrı sendromu hastalarında ağrının azaltılması, yaşam kalitesinin artırılması ve fiziksel işlevin iyileştirilmesi açısından etkili yöntemlerdir. Ancak kuru iğneleme, tedavi sonrası depresyon düzeylerinde daha düşük artışla ilişkilendirilmiştir. Bu bulgular, her iki tedavi yönteminin de klinik uygulamalarda değerlendirilebileceğini göstermektedir.

**Anahtar kelimeler**: Miyofasiyal ağrı sendromu, kinezyo bantlama, kuru iğneleme, depresyon, orofasiyal ağrı

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## INTRODUCTION

Myofascial pain is a regional musculoskeletal condition that originates from hyperirritable taut bands in muscle or fascia, commonly referred to as trigger points[1]. The development of myofascial pain is influenced by various factors, including bruxism, clenching, other parafunctional habits, and psychological contributors such as stress and anxiety[2].

Myofascial pain syndrome (MPS) is one of the most common causes of musculoskeletal pain. Studies have shown that 30–50% of patients presenting with pain complaints to healthcare providers are diagnosed with MPS[3]. In chronic pain clinics, this rate may reach as high as 85%[4]. MPS is more frequently seen in women, and the typical age of onset ranges from 27.5 to 50 years[3,4].

The treatment of MPS generally focuses on two main goals: identifying and deactivating trigger points and eliminating underlying contributing factors. A wide range of treatment modalities is available. In acute MPS cases, non-invasive interventions such as ischemic compression, kinesiology taping, spray and stretch techniques, and physical therapy are typically preferred. Invasive approaches include local anesthetic injections, dry needling, and botulinum toxin administration. For chronic cases, treatment often requires lifestyle modification, regulation of physical activity, ergonomic adjustments, and addressing psychological factors[5,6].

The exact etiology of MPS has not been fully clarified. However, trauma and excessive mechanical loading are considered major contributors to trigger point development. Other contributing factors include genetic predisposition, fatigue, psychological stress, structural and postural abnormalities, vitamin and mineral deficiencies, chronic systemic diseases, infections, and psychosocial factors[7,8]. Recent studies also emphasize the roles of neuromuscular dysfunction and biochemical imbalances in MPS pathophysiology[9].

Current research suggests that the main pathophysiological abnormalities in MPS occur at the motor endplate, where the motor nerve enters the muscle and branches out. Each trigger point is associated with a neurovascular bundle and contains motor endplates and group III and IV nociceptive afferents. Pain from these points is transmitted by thinly myelinated A-delta and unmyelinated C fibers. Mechanical or chemical activation of these fibers is believed to perpetuate trigger points. The head, neck, shoulder girdle, lower back, and dorsal muscles are commonly affected regions. Frequently involved muscles include the upper trapezius, scalene, sternocleidomastoid, levator scapulae, and quadratus lumborum[5].

Clinically, MPS presents with localized pain, muscle weakness, limited range of motion, and referred pain. Palpation of a trigger point typically induces local tenderness and may cause referred pain to distant sites. Autonomic signs are often present[10]. Chronic MPS can also lead to depression, which in turn lowers pain thresholds, intensifies perceived pain, and hinders treatment response. The bidirectional relationship between chronic pain and depression is well established. The effectiveness of antidepressants in both conditions suggests a shared neurochemical basis. Therefore, recognizing and managing depression in chronic pain patients is of clinical importance[11,12].

Diagnosis of MPS is primarily clinical and is based on history and physical examination. According to the criteria proposed by Travell and Simons, a definitive diagnosis requires five major and at least one minor criterion[13–14]. Major criteria include: (1) localized pain, (2) referred pain from a trigger point, (3) a palpable taut band in a muscle, (4) localized tenderness along the taut band, and (5) restricted range of motion. Minor criteria include: (1) pain exacerbation with pressure, (2) elicitation of a local twitch response on palpation or needling, and (3) symptom relief following injection or stretching of the muscle[13,14].

The most reliable method for identifying a myofascial trigger point is to reproduce local or referred pain through palpation. However, the inter-rater reliability of detecting palpable nodules and eliciting a local twitch response is reported to be relatively low[14].

The primary goal in MPS treatment is to deactivate trigger points and interrupt the pain–spasm–pain cycle. Preventing acute trigger points from becoming chronic is often more effective than treating established chronic cases. Addressing mechanical contributors such as postural abnormalities, muscle asymmetry, and dysfunction is therefore crucial. When a trigger point causes weakness, adjacent muscles compensate, increasing their load and

perpetuating dysfunction. Thus, deactivating trigger points restores muscle balance and function. Postural correction, avoidance of repetitive strain, and structured muscle rehabilitation are integral components of therapy[10,13,15].

Non-invasive treatment options include patient education, medications, targeted exercise programs, thermotherapy, ultrasound, electrical stimulation, laser therapy, massage, spray-and-stretch techniques, and ischemic compression. Invasive approaches include local anesthetic injections, botulinum toxin administration, dry needling, and acupuncture[10,15].

Selecting an appropriate treatment not only accelerates recovery but also improves quality of life. This study therefore aimed to compare the effectiveness of kinesiology taping and dry needling two cost-effective and simple approaches in patients with orofacial MPS. Their impact on quality of life was also assessed.

Kinesiology taping is a non-invasive therapy used for trigger point deactivation, enhanced joint mobility, and modulation of muscle tone. While many studies have shown favorable outcomes, further research is needed to confirm its efficacy[7]. This technique was developed in Japan in 1973 by Dr. Kenzo Kase[16] as an alternative to conventional taping methods, which often limited joint motion. Kinesio taping works by lifting the skin, thereby increasing the interstitial space and improving circulation. This reduces inflammation and pain, and may enhance neuromuscular control, prevent injury, improve performance, and accelerate healing[17,18].

Kinesio taping is believed to reduce mechanical pressure from trigger points, improve blood and lymph flow, relieve pressure on sensory receptors, and clear algesic substances thereby alleviating pain and improving joint range of motion[18,19].

Dry needling is another widely accepted technique for managing MPS. It involves mechanical disruption of dysfunctional muscle fibers and neurosensory structures within the trigger point. The needle insertion creates microtrauma that initiates localized healing. Numerous studies support the effectiveness of dry needling in inactivating trigger points and alleviating MPS symptoms[20,21].

Following dry needling, both local and referred pain often decrease. Patients may also experience improved range of motion, reduced peripheral and central sensitization, and normalization of the biochemical environment[22].

Dry needling exerts mechanical, neurophysiological, and chemical effects. First described by Steinbroker and supported by Lewit, its main action involves mechanical stimulation of the trigger point. This frequently elicits a local twitch response (LTR), which activates mechanoreceptors and sends sensory input to the dorsal horn. This input inhibits nociceptive signaling from the trigger point at the spinal level, contributing to pain relief. This mechanism is primarily linked to deep dry needling[15,23,24].

Dry needling contributes to the restoration of normal muscle length, which promotes relaxation and reduces vascular compression. This, in turn, facilitates the clearance of algesic and inflammatory mediators that accumulate in the region and are known to stimulate nociceptors. Shah et al.[25] reported that key algesic substances such as substance P, bradykinin (BK), calcitonin gene-related peptide (CGRP), and tumor necrosis factor (TNF) which are commonly elevated around trigger points, return to baseline levels following the elicitation of local twitch responses (LTRs)[22].

The neurophysiological effects of dry needling are believed to involve the stimulation of A-delta fibers, which activate enkephalinergic inhibitory interneurons in the dorsal horn. This mechanism results in the release of endogenous opioids and consequent pain suppression[26].

A local twitch response is defined as a sudden, strong, involuntary spinal reflex contraction of the taut muscle band or the trigger point itself, triggered by needle stimulation. The presence of an LTR is considered a reliable indicator of precise needle placement in a hypersensitive area. Eliciting LTRs has been associated with improved clinical outcomes in trigger point therapy. According to Hong, patients experience more immediate pain relief when LTRs are induced either via dry needling or local anesthetic injection. Conversely, minimal therapeutic effect is observed when LTRs are not present, suggesting that the analgesic response is closely tied to nociceptor disruption during needling[22].

The primary aim of this study is to compare the effectiveness of kinesiology taping and dry needling in patients with myofascial pain syndrome (MPS) in the orofacial region. Specifically, the study investigates their effects on pain intensity, depression levels, mouth opening, and quality of life. In addition,

the study evaluates whether these treatments offer significant clinical advantages over placebo (sham dry needling).

Accordingly, the hypothesis is that both kinesiology taping and dry needling will be significantly more effective than sham dry needling in reducing pain, lowering depression scores, improving physical function, and enhancing overall quality of life.

## MATERIALS AND METHODS

### Sample

This study included 46 patients who presented to the Department of Oral and Maxillofacial Surgery at the Faculty of Dentistry, Mustafa Kemal University. All participants reported symptoms such as jaw pain, facial discomfort, masticatory muscle pain, or restricted mouth opening. The diagnosis of myofascial pain syndrome (MPS) was made based on both clinical examination and radiological findings. Eligible patients were documented using a standardized evaluation form. Participants were randomly allocated into three groups: kinesiology taping (n = 15), dry needling (n = 16), and sham dry needling (placebo) (n = 15).

Participants aged between 18 and 55 years with a confirmed clinical and radiological diagnosis of orofacial MPS were eligible for inclusion. Additional criteria required the presence of at least one active trigger point in the masseter muscle, a minimum pain score of 4 on the Visual Analog Scale (VAS), and no prior physical therapy or interventional treatment for MPS within the last six months.

Exclusion criteria included the presence of systemic musculoskeletal or rheumatologic disorders, psychiatric conditions requiring active treatment, a history of facial trauma or surgery, current use of centrally acting analgesics or antidepressants, pregnancy, and inability to adhere to the scheduled follow-up visits.

### Procedure

All clinical procedures and assessments were performed by a single, calibrated oral and maxillofacial surgery resident under the supervision of a senior faculty member to maintain consistency across participants. Each intervention followed a pre-established departmental protocol to ensure uniformity in timing, technique, and assessment methodology across groups. Data were recorded using structured forms and immediately transferred to a digital database following each session. To ensure data integrity and accuracy, two independent researchers cross-checked all entries for consistency. The study was conducted in accordance with institutional clinical research standards and adhered to ethical principles approved by the university's ethics committee.

Ethical approval for this study was granted by the Clinical Research Ethics Committee of Hatay Mustafa Kemal University, Tayfur Ata Sokmen Faculty of Medicine, on June 24, 2021 (Protocol No. 2021/79, Decision No. 15). All participants provided written informed consent before being enrolled in the study.

**Group 1 – Kinesiology taping (treatment)**

Kinesiology tape was applied once per week to the masseter muscle using the muscle inhibition technique. The tape remained in place for three days and was reapplied weekly over a total treatment period of three weeks (Figure 1).

**Figure 1. Kinesio taping application**

**Group 2 – Dry needling (treatment)**

Participants received dry needling therapy once per week for three weeks. Trigger points in the masseter muscle were identified via palpation. After disinfection, 0.25 x 25 mm sterile acupuncture needles (Hua Long®, China) were inserted into the identified points until a local twitch response was elicited (Figure 2).

**Group 3 – Sham dry needling (control)**

A blunt needle was applied without skin penetration over the same anatomical sites used in the dry

needling group. The procedure was performed once weekly for three weeks. (Figure 3).All participants in each group received post-treatment care consisting of nonsteroidal anti-inflammatory drugs (NSAIDs) and muscle relaxants. They were also instructed in therapeutic exercises, massage, and manual therapy techniques.

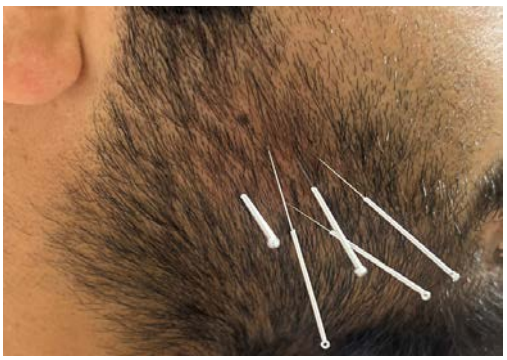

**Figure 2. Dry needling procedure applied to the masseter muscle.**

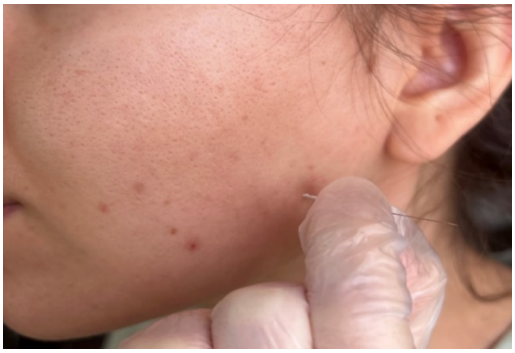

**Figure 3. Sham dry needling procedure applied without skin penetration.**

## Measures

Clinical evaluations were conducted at five distinct time points: prior to treatment, Day 1, Week 1, Week 3, and Month 3 post-treatment. The following validated instruments were employed:

### Visual Analog Scale (VAS)

It is used to assess the intensity of pain on a 10 cm line, with 0 representing "no pain" and 10 representing "worst imaginable pain" [27]. The Turkish version of the VAS has been validated for musculoskeletal pain assessment.

### Pain Information Form

The form is used for subjective reporting of pain characteristics such as location, duration, and type. This tool was designed based on departmental clinical assessment standards.

### Maximum Mouth Opening (MMO)

It is measured as the interincisal distance (in millimeters) between the upper and lower central incisors using a standard 15 cm plastic goniometer[28]. The reliability of this method has been confirmed in studies conducted in Turkish populations with temporomandibular disorders.

### 36-Item Short Form Health Survey (SF-36)

The scale is used to assess health-related quality of life across eight domains, including physical functioning, role limitations, pain, and emotional well-being[29]. The Turkish version has shown strong reliability and validity.

### Beck Depression Inventory (BDI)

It is a 21-item self-report inventory assessing the severity of depressive symptoms. Each item is scored on a scale from 0 to 3, with higher scores indicating more severe symptoms[30]. The Turkish adaptation has demonstrated sufficient psychometric properties.

All assessments were performed face-to-face by Çağatay Akıncı, an oral and maxillofacial surgery resident trained in the clinical management of myofascial pain syndrome.

## Statistical analysis

All data analyses were conducted using SPSS version 21.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics, including means, standard deviations, and percentages, were calculated. The Kolmogorov-Smirnov test was used to assess data normality. For comparisons between two independent groups, the Mann-Whitney U test was employed, while comparisons involving more than two groups were analyzed using the Kruskal-Wallis H test. A p-value of less than 0.05 was considered statistically significant.

# RESULTS

To evaluate group differences in pain intensity, a Kruskal-Wallis H test was conducted on Visual Analog Scale (VAS) scores. Although the kinesiology taping group exhibited higher VAS scores at Day 1, Week 3, and Month 3; the sham dry needling group showed lower scores at Day 1 and Week 1; and the

lowest scores at Month 3 were found in the dry needling group, these differences were not statistically significant ($p > 0.05$). Despite this, the VAS scores at Month 3 suggest that dry needling may be more effective in long-term pain reduction compared to other interventions (Table 1).

**Table 1. Comparison of VAS scores between groups**

| Time Point | Group | N | Mean | SD (±) | $\chi^2$ | p |
|---|---|---|---|---|---|---|
| Pre-Treatment VAS | Kinesio Taping | 15 | 6.26 | 1.72 | 0.859 | 0.651 |
| | Dry Needling | 16 | 6.10 | 1.29 | | |
| | Sham Dry Needling | 15 | 5.75 | 1.33 | | |
| Day 1 Post-Treatment | Kinesio Taping | 15 | 5.99 | 1.65 | 0.317 | 0.853 |
| | Dry Needling | 16 | 5.90 | 1.28 | | |
| | Sham Dry Needling | 15 | 5.70 | 1.30 | | |
| Week 1 Post-Treatment | Kinesio Taping | 15 | 5.26 | 1.36 | 0.332 | 0.847 |
| | Dry Needling | 16 | 5.43 | 1.29 | | |
| | Sham Dry Needling | 15 | 5.36 | 1.09 | | |
| Week 3 Post-Treatment | Kinesio Taping | 15 | 4.92 | 1.07 | 1.012 | 0.603 |
| | Dry Needling | 16 | 4.46 | 0.64 | | |
| | Sham Dry Needling | 15 | 4.46 | 0.60 | | |
| Month 3 Post-Treatment | Kinesio Taping | 15 | 4.42 | 0.84 | 1.373 | 0.503 |
| | Dry Needling | 16 | 4.14 | 0.92 | | |
| | Sham Dry Needling | 15 | 4.20 | 0.57 | | |

VAS – Visual Analog Scale; SD – Standard Deviation; N – Number of Participants; $\chi^2$ – Chi-square; p – p-value.

**Table 2. Comparison of Beck Depression Inventory scores among groups**

| Time Point | Group | N | Mean | SD (±) | $\chi^2$ | p |
|---|---|---|---|---|---|---|
| Pre-Treatment | Kinesio Taping | 15 | 53.86 | 10.46 | 1.476 | .478 |
| | Dry Needling | 16 | 51.25 | 10.16 | | |
| | Sham Dry Needling | 15 | 49.80 | 10.42 | | |
| Day 1 Post-Treatment | Kinesio Taping | 15 | 51.13 | 9.29 | 1.106 | .575 |
| | Dry Needling | 16 | 50.43 | 6.92 | | |
| | Sham Dry Needling | 15 | 52.86 | 8.86 | | |
| Week 1 Post-Treatment | Kinesio Taping | 15 | 54.06 | 3.36 | 5.214 | .074 |
| | Dry Needling | 16 | 52.62 | 4.68 | | |
| | Sham Dry Needling | 15 | 55.40 | 5.86 | | |
| Week 3 Post-Treatment | Kinesio Taping | 15 | 59.93 | 6.51 | 10.130 | .006* |
| | Dry Needling | 16 | 53.87 | 5.18 | | |
| | Sham Dry Needling | 15 | 53.40 | 7.31 | | |
| Month 3 Post-Treatment | Kinesio Taping | 15 | 65.46 | 3.96 | 10.196 | .006* |
| | Dry Needling | 16 | 59.68 | 4.86 | | |
| | Sham Dry Needling | 15 | 59.86 | 6.67 | | |

VAS – Visual Analog Scale; SD – Standard Deviation; N – Number of Participants; $\chi^2$ – Chi-square; p – p-value.

Statistically significant differences in SF-36 quality of life scores across the groups were identified using the Kruskal-Wallis H test. Specifically, significant group differences were observed in physical functioning at Week 3 and in both social functioning and general health perception at Month 3 ($p < 0.05$).

Subsequent analysis with the Mann-Whitney U test revealed that the differences in physical functioning at Week 3 occurred between the kinesiology taping and sham groups, as well as between the dry needling and sham groups. In both cases, the treatment groups demonstrated significantly higher physical functioning scores compared to the sham group.

At Month 3, social functioning scores also differed significantly among the groups. The sham group exhibited higher scores than the kinesiology taping group but lower than the dry needling group. In terms of general health perception at Month 3, the

dry needling group scored significantly lower than both the kinesiology taping and sham groups.

To evaluate differences in depression levels, a Kruskal-Wallis H test was applied to Beck Depression Inventory (BDI) scores. Statistically significant differences were found at both Week 3 and Month 3 post-treatment ($p < 0.05$; see Table 2).

Follow-up analysis using the Mann-Whitney U test indicated that the kinesiology taping group had significantly higher BDI scores at both Week 3 and Month 3 compared to the dry needling and sham dry needling groups.

Finally, post-treatment mouth opening values were compared using a Kruskal-Wallis H test. Although the sham dry needling group showed higher values at all post-treatment time points, these differences were not statistically significant ($p > 0.05$) (Table 3).

**Table 3. Comparison of post-treatment mouth opening measurements among groups**

| Time Point | Group | N | Mean | SD (±) | $\chi^2$ | p |
|---|---|---|---|---|---|---|
| Day 1 Post-Treatment | Kinesio Taping | 15 | 29.53 | 4.19 | 0.302 | .860 |
| | Dry Needling | 16 | 29.18 | 2.97 | | |
| | Sham Dry Needling | 15 | 30.40 | 5.59 | | |
| Week 1 Post-Treatment | Kinesio Taping | 15 | 30.06 | 2.96 | 0.743 | .690 |
| | Dry Needling | 16 | 29.93 | 2.29 | | |
| | Sham Dry Needling | 15 | 31.53 | 4.35 | | |
| Week 3 Post-Treatment | Kinesio Taping | 15 | 31.93 | 2.28 | 0.046 | .977 |
| | Dry Needling | 16 | 31.81 | 2.53 | | |
| | Sham Dry Needling | 15 | 32.40 | 4.37 | | |
| Month 3 Post-Treatment | Kinesio Taping | 15 | 31.40 | 1.40 | 0.499 | .779 |
| | Dry Needling | 16 | 31.87 | 2.27 | | |
| | Sham Dry Needling | 15 | 32.60 | 3.26 | | |

VAS – Visual Analog Scale; SD – Standard Deviation; N – Number of Participants; $\chi^2$ – Chi-square; p – p-value.

## DISCUSSION

Myofascial pain syndrome (MPS) is a chronic musculoskeletal condition commonly attributed to trigger points located within taut bands of muscle. Despite its high prevalence and clinical relevance, MPS is frequently misdiagnosed or overlooked, which may result in inappropriate treatment and increased patient burden. Accurate diagnosis and individualized therapy targeting the disruption of the pain–spasm–pain cycle remain essential for effective management.

This study investigated the efficacy of two conservative therapeutic approaches kinesiology taping and dry needling—in patients with orofacial MPS. Across all groups, pain scores measured by the Visual Analog Scale (VAS) improved over time. Although the between-group differences did not reach statistical significance, the dry needling group exhibited the lowest pain scores by Month 3, suggesting a potential long-term advantage in pain control.

Our findings are in line with those of Öztürk et al.[31], who reported a significant reduction in VAS scores following kinesiology taping in patients with upper trapezius MPS. Similarly, Jaroń et al.[32] documented enhanced quality of life with kinesio taping, which supports our own findings related to improvements in physical functioning and social participation.

Regarding quality of life, statistically significant improvements were observed in SF-36 scores, particularly in physical functioning at Week 3 and social functioning at Month 3. Both the kinesiology taping and dry needling groups outperformed the sham group in these domains. These results are consistent with findings by Tekin et al.[33], who also demonstrated superior functional outcomes with dry needling compared to placebo. These findings are supported by normative data from Turkish populations reported by Demiral et al[34].

Depression levels, assessed via the Beck Depression Inventory (BDI), revealed statistically significant increases in the kinesiology taping group at Week 3 and Month 3. This finding contrasts with the study by Yılmaz et al.[35], who reported better psychological outcomes in patients treated with kinesio taping compared to dry needling. The discrepancy may be attributed to variations in anatomical treatment focus

or baseline psychological profiles among study populations.

Although improvements in mouth opening were observed across all groups, the differences were not statistically significant. Nevertheless, these results are in agreement with prior studies by Keskinruzgar et al.[36] and Wang et al.[37], both of which reported favorable effects of kinesiology taping on mandibular mobility.

This study has several limitations. First, the relatively small sample size may have reduced the statistical power to detect subtle intergroup differences. Second, patient compliance with prescribed home exercises could not be consistently monitored, potentially influencing treatment outcomes. Lastly, the lack of follow-up beyond three months limits the ability to assess the long-term efficacy and sustainability of the interventions.

The results of this study indicate that both kinesiology taping and dry needling are effective therapeutic options for patients with myofascial pain syndrome (MPS). Both modalities contributed to pain reduction, improvements in quality of life, decreased depression scores, and enhanced physical function. Although dry needling demonstrated a potential advantage in long-term pain management, kinesiology taping remains a clinically valuable alternative, particularly in cases where needle-based interventions are not suitable.

Pain Reduction: Both kinesiology taping and dry needling significantly reduced VAS scores throughout the study period. These findings support the use of either intervention for effective pain control in MPS. Nonetheless, further studies with larger sample sizes are needed to clarify comparative efficacy.

Quality of Life: Improvements observed in multiple domains of the SF-36 scale suggest that both treatments positively influence overall quality of life. Therefore, these modalities should be considered as part of a holistic management plan for MPS.

Depression Alleviation: While changes in BDI scores were noted in both groups, additional research is necessary to establish the consistency of these effects and to elucidate the mechanisms by which they influence psychological well-being.

Physical Function: Statistically significant improvements in physical functioning reinforce the utility of kinesiology taping and dry needling as supportive interventions not only in MPS but also in other conditions involving musculoskeletal dysfunction.

In summary, both kinesiology taping and dry needling offer promising outcomes for the management of myofascial pain syndrome. Their affordability, accessibility, and ease of application make them attractive options for widespread clinical adoption. However, future randomized controlled trials with extended follow-up durations are essential to confirm these findings and to establish evidence-based treatment guidelines.

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