

Osteopathic treatment of temporomandibular joint dysfunction

Rahat Abirova*

PhD in Medical Sciences, Associate Professor
I.K. Akhunbaev Kyrgyz State Medical Academy
720020, 92 Akhunbaev Str., Bishkek, Kyrgyz Republic
<https://orcid.org/0000-0001-5204-5583>

Abdyrakman Eshiev

Doctor of Medical Sciences, Professor, Corresponding Member of the National Academy of Sciences of the Kyrgyz Republic
Research Institute of Biomedical Problems of the Southern Branch of the National Academy of Sciences of the
Kyrgyz Republic
723500, 130-A Uzgenskaya Str., Osh, Kyrgyz Republic
<https://orcid.org/0000-0003-2617-8360>

Abstract. Temporomandibular joint dysfunction (TMD) is among the most prevalent disorders of the maxillofacial region and has a substantial negative impact on patients' quality of life. In recent years, growing interest has been directed toward non-pharmacological treatment strategies, including osteopathic manual therapy. The aim of this study was to assess the clinical effectiveness of osteopathic manipulative treatment and cranial osteopathy in patients diagnosed with TMD. The study cohort included individuals presenting with orofacial pain, restricted mandibular mobility, and signs of muscular hypertonicity and imbalance. The therapeutic protocol comprised a complex of osteopathic interventions, including soft tissue techniques, post-isometric relaxation, and cranial as well as visceral approaches. These methods were aimed at restoring the physiological mobility of cranial structures and improving the functional state of the masticatory muscles. Following the course of osteopathic treatment, a significant reduction in pain intensity in the mandibular region was observed, with mean scores decreasing from 6.1 to 3.1 points. The severity of painful clicking in the temporomandibular joint decreased from 7.4 to 2.8 points ($p = 0.022$). Functional improvement was also noted, reflected by increased maximal mouth opening and a reduction in headache frequency. Headache intensity declined from 6.7 to 3.5 points ($p = 0.044$). Overall, the findings demonstrate a statistically significant reduction in pain, improved mandibular mobility, and enhanced functional status of the temporomandibular joint after osteopathic treatment. A decrease in cephalgic symptoms and improvement in general well-being were also reported. These results support the integration of osteopathic manual therapy and cranial osteopathy into comprehensive, multidisciplinary rehabilitation programs for patients with temporomandibular joint dysfunction

Keywords: temporomandibular disorders (TMD); temporomandibular joint pathology; osteopathic manual therapy; cranial osteopathy; interdisciplinary rehabilitation

INTRODUCTION

Temporomandibular joint dysfunction (TMD) is one of the most common disorders of the maxillofacial region and ranks second in prevalence among musculoskeletal conditions after low back pain. According to epidemiological data, signs of temporomandibular joint (TMJ) dysfunction are observed in 30-50% of the general population, while clinically significant manifestations occur in approximately 10-25% of individuals, predominantly within the 20-40-year age group [1].

A.Y. Alqutaibi *et al.* [2] conducted a systematic review and meta-analysis examining the global prevalence of temporomandibular disorders, synthesising findings from multiple epidemiological studies across different regions worldwide. Their meta-analytical approach provided statistically robust estimates of TMD prevalence at the global level. Similarly, A.H. Alrizqi & B.M. Aleissa [3] performed a literature review assessing the prevalence of temporomandibular disorders between 2015 and 2021. The authors systematically

Suggested Citation:

Abirova R, Eshiev A. Osteopathic treatment of temporomandibular joint dysfunction. J Hum Biol Clin Med, 2026;2(1):8-17.

*Corresponding author



Copyright © The Author(s). This is an open access article distributed under the terms of the Creative Commons Attribution License 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

analysed published data to identify trends and changes in the epidemiological landscape over a six-year period, thereby offering an updated perspective on the current scope and evolution of the condition. According to L.S. Vieira *et al.* [4], the pathogenesis of temporomandibular disorders is multifactorial, involving biomechanical, neuromuscular, psychoemotional, and postural components. Altered occlusal relationships, myofascial overstrain, psychological stress, and associated postural disturbances contribute to the development of pain syndrome, restricted mandibular mobility, and reduced quality of life.

Contemporary approaches to the management of temporomandibular joint dysfunction, as described by A. Herrera-Valencia *et al.* [5], include pharmacological therapy, occlusal splint therapy, physiotherapeutic interventions, psychotherapy, and surgical correction in severe cases. However, the effectiveness of conventional treatment modalities is not always satisfactory, particularly in patients with chronic forms of the disorder and a pronounced muscular-tonic component. In this context, increasing attention has been directed toward non-pharmacological, functionally oriented therapeutic strategies, among which osteopathic treatment occupies a prominent position. A. Pawlowski *et al.* [6] evaluated the effects of osteopathic techniques on pain reduction and functional improvement of the temporomandibular joint in young patients. Their study emphasized the potential of osteopathic interventions as an effective therapeutic option for adolescents with TMD, highlighting their safety profile and minimal invasiveness compared to conventional treatment approaches.

Osteopathy conceptualises the human body as an integrated functional system in which structure and function are inherently interrelated. Osteopathic techniques aim to restore physiological tissue mobility, optimise microcirculation, and re-establish neuromuscular balance. In the management of temporomandibular joint dysfunction, osteopathic interventions address not only local structural impairments but also systemic functional disturbances, contributing to improved cranial bone alignment, normalisation of masticatory muscle activity, and overall enhancement of temporomandibular joint function [7, 8]. A. Nahian & J.Jr. Mathew [9] examined several osteopathic approaches for the treatment of TMD, including muscle energy techniques for the facial musculature, direct myofascial release (MFR), and the balanced ligamentous tension (BLT) technique. The authors described the underlying mechanisms of these interventions and their clinical application in improving joint function, reducing pain intensity, and restoring normal mandibular mobility. The effectiveness and safety of these techniques were emphasised in the context of TMD management.

In a series of clinical studies, Y.A. Milutka [10] demonstrated that osteopathic manipulative treatment contributes to pain reduction, increased maximal mouth

opening, decreased hypertonicity of the masticatory muscles, and improvement in patients' psychoemotional status. Nevertheless, despite the growing body of literature, important issues remain unresolved, particularly regarding the evaluation of osteopathic techniques within the framework of evidence-based medicine and the standardisation of rehabilitation protocols for patients with TMD.

Thus, the relevance of the present study is determined by the high prevalence of temporomandibular joint dysfunction, its substantial impact on patients' quality of life, and the need to develop and scientifically substantiate effective, safe, and minimally invasive treatment approaches, including osteopathic interventions. The aim of this study was to evaluate the clinical effectiveness of osteopathic manipulative treatment and cranial osteopathy in patients with temporomandibular joint dysfunction.

MATERIALS AND METHODS

A total of 30 patients were recruited from the Department of Maxillofacial Surgery at Osh Interregional United Clinical Hospital between January and June 2025. All potential participants were informed about the objectives and procedures of the study and provided written informed consent prior to enrollment. Inclusion criteria were as follows: age between 28 and 30 years; a confirmed diagnosis of TMD; and willingness to attend all scheduled treatment sessions and follow-up visits in accordance with the study protocol. Patients were excluded if they presented with any condition that could potentially confound the study outcomes or compromise participant safety. Exclusion criteria included acute inflammatory diseases, malignant neoplasms, and severe cardiovascular or neurological disorders. Individuals with absolute or relative contraindications to osteopathic manipulative treatment – such as acute fractures, recent maxillofacial trauma, or active infectious processes – were also excluded.

Additionally, patients receiving medications or undergoing therapeutic interventions that could significantly influence the assessed outcome measures were not included if safe discontinuation of such treatments was not feasible. Pregnancy and breastfeeding were considered exclusion criteria in cases where the proposed intervention might pose a potential risk to the mother or child. Participants who were unable or unwilling to adhere strictly to the study protocol, including regular attendance at all scheduled sessions and compliance with clinical recommendations, were withdrawn from the study.

Participant selection procedure. Participant recruitment was conducted in several stages. At the initial stage, eligibility according to the inclusion criteria was assessed based on a review of medical records and data obtained during a structured oral interview. A more comprehensive evaluation of compliance with all inclusion and exclusion criteria was performed by

the investigator immediately prior to obtaining written informed consent. If any risk factors, contraindications, or exclusion criteria were identified at this stage, the patient was excluded from participation. The specific reason for exclusion was documented in the study protocol to ensure transparency and methodological rigor.

Assessment of pain syndrome and functional status of the temporomandibular joint. Standardised methods and validated assessment tools were employed to ensure objective evaluation of pain intensity and TMJ function. Active maximal mouth opening was measured using a calibrated ruler or digital calliper and recorded in millimetres. Patients were instructed to open their mouths as widely as possible without provoking pain. The distance between the incisal edges of the upper and lower central incisors was measured. Each measurement was performed three times, and the mean value was calculated for statistical analysis. Pain intensity was assessed using a 10-cm visual analogy scale (VAS), where 0 indicated no pain and 10 represented the worst imaginable pain. Patients independently marked their perceived pain level on the scale, and the distance from the origin to the marked point was measured in millimetres to obtain a quantitative value. For comprehensive evaluation of TMJ functional status, the Temporomandibular Joint Symptom and Impact Scale (TMJ-SIS) was utilised. This instrument allowed quantitative assessment of mandibular mobility limitation, pain intensity at rest and during movement, as well as the impact of the disorder on quality of life and daily functioning. Individual item scores were summed to calculate an overall composite functional index of TMJ status.

Osteopathic intervention protocol. Osteopathic treatment was delivered by a certified practitioner with clinical expertise in the management of TMJ disorders. Each session followed a standardised structure and involved the sequential application of complementary techniques aimed at improving joint mobility, reducing muscular hypertonicity, and alleviating pain. The session commenced with a brief preparatory phase (2-3 minutes). The patient was positioned either seated or supine. Gentle palpatory assessment of the facial, cervical, and temporomandibular soft tissues was undertaken to evaluate muscle tone and to identify areas of increased tension or tenderness. This was followed by soft tissue techniques (5-7 minutes). Targeted manual therapy was applied to the masseter and temporalis muscles, incorporating gradual stretching and relaxation manoeuvres. Gentle passive mobilisation of the TMJ was performed to reduce muscle spasm and improve functional mobility. Each manoeuvre was executed slowly, with sustained engagement of areas of restriction for approximately 20-30 seconds, repeated two to three times bilaterally. Craniosacral techniques were subsequently applied (approximately 5 minutes). These included subtle manual balancing of the temporal bones and parietal region with the intention

of optimising craniosacral dynamics. Gentle mandibular traction was also performed to facilitate decompression of the joint structures. The next phase involved structural mobilisation of the TMJ (5-10 minutes). Controlled mobilisation within a restricted, pain-free range was carried out to restore symmetry of mandibular movement. Rotational and lateral translational techniques were applied using precise, low-amplitude manual pressure. The session concluded with relaxation techniques targeting the cervical and shoulder girdle musculature (2-3 minutes). A post-treatment assessment was then conducted to reassess mandibular mobility and to document changes in the patient's subjective symptoms and overall comfort. Osteopathic treatment sessions were conducted twice weekly, with each session lasting 20-25 minutes. The total number of sessions ranged from 6 to 8 and was determined individually according to the baseline severity of symptoms and the patient's clinical progress. All techniques were applied gently and atraumatically, with continuous monitoring of the patient's response to the interventions.

Throughout the study, safety requirements and sanitary-hygienic standards were strictly observed. The study protocol was approved by the Local Ethics Committee of Osh State University (Protocol No. 136, dated December 11, 2024). The Osh Interregional United Clinical Hospital served as the clinical base of Osh State University. The study was conducted in full compliance with the principles of the Declaration of Helsinki [11]. Written informed consent was obtained from all participants prior to inclusion in the study.

All collected data were entered and analysed using SPSS statistical software (version 26.0). Descriptive statistics for quantitative variables were presented as mean values (M) and standard deviations (SD). The normality of distribution was assessed using the Shapiro-Wilk test. Pre- and post-treatment comparisons were performed using the paired Student's t-test for normally distributed data or the Wilcoxon signed-rank test for non-normally distributed variables. Differences were considered statistically significant at a p-value < 0.05.

RESULTS AND DISCUSSION

During the course of osteopathic treatment, a systematic analysis was conducted to evaluate the frequency of techniques applied to specific TMJ muscles and ligaments, as well as the incidence of pain reported during manual interventions. Techniques targeting the lateral and medial pterygoid muscles were used most frequently. These approaches were applied in 78% of treatment sessions and were associated with subjective pain responses in 62% of cases. In terms of frequency of application, interventions involving the masseter muscle were performed in 63% of sessions, followed by techniques addressing the temporalis muscle (55% of sessions) and the medial pterygoid muscle (33%). The distribution of the applied techniques is presented in Figure 1.

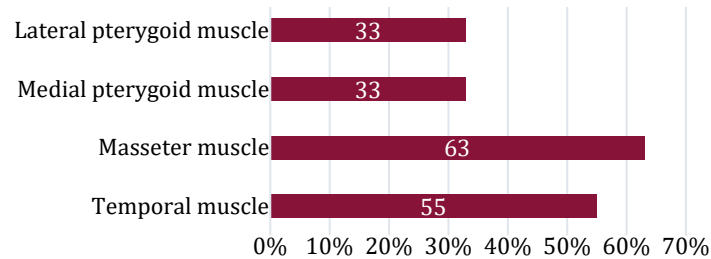


Figure 1. Distribution of pain symptoms elicited in the muscles during manual techniques

Source: developed by the authors

A pain response during manual intervention involving these muscles was observed in 48% and 40% of cases, respectively. When assessing pain manifestations associated with the ligamentous structures of the TMJ, the highest frequency of symptoms was recorded during work on the stylomandibular ligament, with pain reported in 58% of sessions. Less pronounced reactions were noted during interventions targeting the lateral ligament (37% of sessions). Figure 1 illustrates the distribution of pain symptoms elicited during manual techniques applied to muscular

structures throughout the osteopathic sessions. Data analysis demonstrated that the highest frequency of pain responses occurred during interventions involving the lateral and medial pterygoid muscles, reflecting their key role in the pathogenesis of TMJ dysfunction and their substantial functional overload. The least frequently applied and least pain-provoking technique was that directed at the sphenomandibular ligament, which was used in only 22% of sessions and was associated with pain in 15% of cases, as shown in Figure 2.

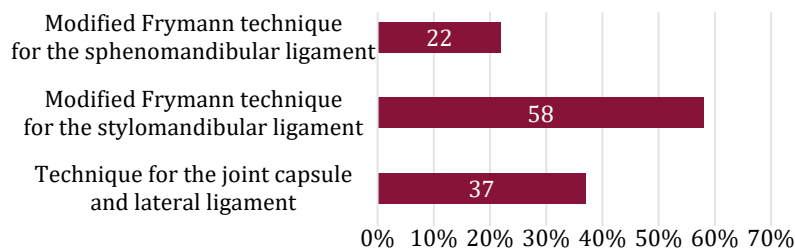


Figure 2. Distribution of pain symptoms elicited in the ligaments during manual techniques

Source: developed by the authors

The analysis of pain distribution patterns indicated that manual techniques applied to the primary masticatory muscles responsible for mandibular movement were more likely to provoke pain responses; however, this discomfort was generally transient and subsided within 1-2 minutes after the intervention. By contrast, interventions targeting the ligamentous structures of the TMJ were performed less frequently but tended to produce more distinct and localised tenderness. These findings suggest that both the frequency of technique application and the associated pain responses should be carefully considered when selecting osteopathic interventions for specific muscular and ligamentous structures. Particular attention should be given to the pterygoid

muscles and the stylomandibular ligament due to their apparent clinical relevance. Figure 2 presents the distribution of pain symptoms observed during manual procedures involving the ligamentous apparatus of the TMJ. The highest incidence of pain was recorded during treatment of the stylomandibular ligament, underscoring its potential contribution to pain generation and functional restriction in TMJ disorders. In contrast, manual intervention involving the lateral ligament was associated with a less pronounced pain response, which may reflect its anatomical location and comparatively limited involvement in the pathological process among the study population. Statistical analysis was performed using data obtained from the TMJ SIS scale (Table 1).

Table 1. Statistical analysis of the TMJ SIS

Symptom	Severity type	Average value before treatment (X)	SD	Average value after treatment (X)	SD	p-value
Jaw pain	Typical	6.1	2.0	3.1	3.9	0.007
	Most severe	9.6	2.9	5.5	3.5	0.032
Painful TMJ clicking	Typical	7.4	2.2	2.8	2.8	0.022
	Most severe	8.6	2.2	3.3	1.9	0.07

Table 1, Continued

Symptom	Severity type	Average value before treatment ($\bar{X}$)	SD	Average value after treatment ($\bar{X}$)	SD	p-value
Mandibular lock	Typical	4.5	4.2	8.9	3.2	0.076
	Most severe	7.4	4.8	7.1	6.0	0.482
Headaches	Typical	6.7	4.9	3.5	4.4	0.044
	Most severe	6.5	4.2	6.4	4.9	0.336
Pain in the cervical-shoulder musculature	Typical	5.9	5.5	5.4	2.0	0.795
	Most severe	0.5	5.5	6.5	3.7	1.000
Dizziness	Typical	2.3	5.0	1.6	1.3	0.523
	Most severe	2.6	5.6	2.1	2.2	0.795
Tinnitus	Typical	5.9	5.5	1.4	5.0	0.795
	Most severe	6.5	5.5	1.5	5.7	1.000

Source: developed by the authors

As shown in Table 1, osteopathic therapy demonstrated the most pronounced effect on mandibular pain, moderate headaches, and joint clicking during mandibular movement. In contrast, symptoms related to secondary manifestations – such as pain in the cervical muscles and shoulder girdle, dizziness, and tinnitus – showed minimal or no clinically meaningful change. These findings support the targeted effect of osteopathic interventions on local TMJ structures and their functional manifestations. The results revealed a statistically significant reduction in pain intensity in the mandibular region, both for the most severe episodes ($p = 0.032$) and for typical pain manifestations ($p = 0.0007$). A significant decrease in the severity of painful joint clicking was also observed, both for maximum symptom intensity ($p = 0.0076$)

and for routine manifestations ($p = 0.0220$). Although the daily frequency of jaw “locking” episodes remained unchanged, the maximum reported severity of this symptom decreased significantly ($p = 0.0077$). No statistically significant correlations were identified between osteopathic intervention and symptoms such as tinnitus, dizziness, or pain in the cervical and/or upper shoulder region. Additional analysis using data obtained from the TMJ Symptom Frequency Scale (SFS) scale (Table 2) further demonstrated a beneficial effect of osteopathic therapy on mandibular pain intensity ($p = 0.0207$), the severity of painful TMJ clicking ($p = 0.0011$), and the frequency of headaches ($p = 0.0122$). However, no significant changes were observed in parameters related to tinnitus, dizziness, or pain in the cervical-shoulder region.

Table 2. Statistical analysis of the TMJ SFS

Symptom	Average value before therapy ($\bar{X}$)	SD	Average value after therapy ($\bar{X}$)	SD	P
Jaw pain	7.71	2.01	4.34	2.35	0.0207
Painful TMJ clicking	8.04	4.09	6.64	2.74	0.0011
Headaches	6.68	0.69	3.71	3.23	0.0122
Pain in the cervical-shoulder musculature	5.04	4.09	5.64	2.74	0.7245
Dizziness	5.04	4.09	26.64	4.74	0.5211

Source: developed by the authors

Analysis of the data obtained using the TMJ SFS made it possible to assess the effectiveness of osteopathic therapy in terms of reducing the frequency of clinical symptom occurrence. After completion of the treatment course, a statistically significant reduction in the frequency of mandibular pain was observed: the mean score decreased from 7.71 ± 2.01 to 4.34 ± 2.35 ($p = 0.0207$). This finding indicates that osteopathic interventions contributed to a meaningful reduction in the recurrence of pain during mastication and mandibular movements. The frequency of painful clicking in the TMJ also declined significantly, from 8.04 ± 4.09 to 6.64 ± 2.74 ($p = 0.0011$). This suggests a positive therapeutic effect on functional impairment of the TMJ, particularly on joint complex dysfunction manifested

by clicking phenomena. Osteopathic therapy was likewise associated with a statistically significant decrease in headache frequency, with the mean value decreasing from 6.68 ± 0.69 to 3.71 ± 3.23 ($p = 0.0122$). This improvement may be attributed to reduced muscular tension in the masticatory and cervical regions, as well as to improved biomechanical function of the TMJ.

Changes in the frequency of pain in the cervical and shoulder girdle muscles were not statistically significant (5.04 ± 4.09 vs. 5.64 ± 2.74 ; $p = 0.7245$). This suggests that the short-term course of osteopathic therapy had minimal impact on these secondary symptoms, or that their manifestation is influenced by more complex, multifactorial mechanisms. The mean dizziness scores changed from 5.04 ± 4.09 to 6.64 ± 4.74 ($p = 0.5211$).

However, these differences did not reach statistical significance, indicating that osteopathic therapy had no substantial effect on the frequency of this symptom and that its management may require a more comprehensive therapeutic approach. Overall, osteopathic therapy exerted its most pronounced effect on local TMJ-related symptoms, including mandibular pain, painful joint clicking, and headaches, with a significant reduction in their frequency. In contrast, secondary manifestations – such as cervical and shoulder girdle muscle pain, dizziness, and tinnitus – did not demonstrate statistically significant changes, underscoring the need for an integrated approach when addressing systemic or extra-articular symptoms. The findings indicate that a course of osteopathic treatment incorporating soft tissue techniques, craniosacral methods, and structural mobilisation procedures can significantly reduce pain intensity in the mandibular region, decrease both the frequency and severity of painful TMJ clicking, and alleviate associated headaches. Secondary symptoms, however, exhibited minimal clinical dynamics.

A comparison with findings reported in the literature supports the overall positive impact of manual and osteopathic approaches on the core clinical manifestations of temporomandibular disorders. The systematic review by G. Asquini *et al.* [12] concluded that manual therapy targeting craniomandibular structures contributes to meaningful pain reduction and functional improvement in patients with temporomandibular disorders. The outcomes of the present study are in line with these observations, particularly with regard to the decrease in pain intensity and painful joint symptoms. In addition, A. Herrera-Valencia *et al.* [5] reported that manual therapy leads to clinically significant and sustained reductions in pain, along with improvements in maximal mouth opening over the medium and long term. In our study, pain reduction was likewise statistically significant. However, maximal mouth opening was evaluated as a secondary parameter and was not defined as a primary endpoint of treatment efficacy.

J. Pawłowski *et al.* [13] investigated the effects of osteopathic treatment on TMJ dysfunction in adolescents and reported a marked reduction in pain along with improved functional outcomes. The findings of the present study are consistent with these results, although the current cohort included older participants. In a kinesiographic study, H. von Piekartz & K. Lütke [14] demonstrated that osteopathic manipulative techniques significantly improve mandibular kinematics. This aligns with the clinical improvements in mandibular mobility and the reduction of functional restrictions observed in our study. Russian researchers have also confirmed the effectiveness of osteopathic interventions for this condition. Y.A. Milutka & A.E. Fortin [15] highlighted the role of osteopathic therapy as part of a multidisciplinary treatment approach, emphasising its positive effects on pain and

functional parameters – results that are largely consistent with those reported here.

M.V. Martysheva *et al.* [16] described an interdisciplinary approach to diagnosing and managing patients with TMJ dysfunction, stressing the need to integrate the expertise of dentists, neurologists, and osteopaths to optimise therapeutic outcomes. The results of the present study support this perspective, as osteopathic intervention was implemented as part of a comprehensive rehabilitation program and produced significant improvements in key clinical measures. Finally, S. Easterbrook *et al.* [17] reviewed the potential of osteopathic manipulative treatment for temporomandibular disorders, emphasising the use of direct and indirect techniques to reduce pain and restore function. The findings of this pilot study are broadly in agreement with these conclusions, particularly regarding the significant reduction of pain and functional impairments (such as joint clicking and limited mouth opening), although in the current study the focus was on cranial and soft tissue techniques with quantitative assessment using standardised scales.

The results of this pilot study support the clinical effectiveness of osteopathic manipulative treatment and cranial osteopathy in TMJ dysfunction. A significant reduction was observed in mandibular pain intensity, the frequency of painful joint clicks, and associated headaches. In contrast, secondary symptoms such as tinnitus, dizziness, and cervical-shoulder pain showed minimal or no change. E. Schiffman *et al.* [18] developed and recommended the Diagnostic Criteria for Temporomandibular Disorders (DC/TMD), which provide validated screening tools for identifying painful TMD subtypes and criteria for differentiating common intra-articular disorders. These recommendations align with the methodology of the present study, which utilised standardised assessment scales – including the TMJ SIS – allowing objective documentation of symptom improvement following osteopathic intervention.

A.A. Garstka *et al.* [19], in a literature review supplemented by clinical experience, emphasised the importance of accurate diagnosis of painful TMD forms and the use of comprehensive therapy, including physiotherapy, occlusal splints, and other conservative approaches. The findings of the current study complement these conclusions, demonstrating that osteopathic techniques – soft tissue, craniosacral, and structural mobilisation – can serve as an effective component of such integrated therapy, particularly for reducing local pain and improving functional limitations. D. Manfredini [20], in a systematic review, analysed the prevalence of tinnitus among patients with TMD and reported a higher incidence compared with the general population (median 42.3% vs. 12%), highlighting the comorbidity between TMD and tinnitus. In this study, tinnitus did not show significant change following osteopathic treatment, which aligns with D. Manfredini's

observations and underscores the need for further investigation into the pathophysiological links and treatment effectiveness for this symptom. Y.J. Liou *et al.* [21] identified bidirectional associations between TMD and severe depressive and anxiety disorders: the presence of TMD increased the risk of subsequent depression and anxiety by 3-7 times, while pre-existing psychiatric conditions increased the risk of TMD by 5-8 times. These findings emphasise the psychoemotional component of TMD pathogenesis and help explain why secondary symptoms, including potential psychosomatic manifestations, showed minimal change in the present study – likely requiring longer-term or combined interventions, including psychotherapeutic support.

Overall, these results demonstrate that osteopathic techniques are an effective and safe approach for reducing local pain, improving TMJ functional limitations, and enhancing patient quality of life. This pilot study supports the rationale for integrating osteopathic therapy into interdisciplinary rehabilitation programs and provides a basis for future randomised clinical trials with larger sample sizes aimed at clarifying mechanisms of action, long-term efficacy, and optimal application protocols for osteopathic interventions.

CONCLUSIONS

The study demonstrates the clinical effectiveness of osteopathic manipulative treatment and cranial osteopathy in patients with TMJ dysfunction. Application of osteopathic techniques led to a significant reduction in pain intensity, decreased frequency of functional joint disturbances, and a positive impact on associated headache symptoms. According to the TMJ Symptom Intensity Scale (SIS), average mandibular pain decreased from 6.1 ± 2.0 to 3.1 ± 3.9 , representing a 49% reduction ($p = 0.007$), while the most severe pain decreased from 9.6 ± 2.9 to 5.5 ± 3.5 (-43%, $p = 0.032$). Painful mandibular clicking on the SIS decreased from 7.4 ± 2.2 to 2.8 ± 2.8 (-62%, $p = 0.022$) for typical manifestations, and the most severe clicks reduced by 62% ($8.6 \rightarrow 3.3$, $p = 0.07$), indicating a clear trend toward improvement.

Headache intensity decreased from 6.7 ± 4.9 to 3.5 ± 4.4 (-48%, $p = 0.044$). Less pronounced changes were observed for pain in the cervical and shoulder muscles, dizziness, and tinnitus ($p > 0.05$).

Analysis of symptom frequency using the SFS scale confirmed a reduction in the regularity of clinical signs of TMJ dysfunction. Mandibular pain frequency decreased from 7.71 ± 2.01 to 4.34 ± 2.35 (-44%, $p = 0.0207$), painful clicking from 8.04 ± 4.09 to 6.64 ± 2.74 (-17%, $p = 0.0011$), and headaches from 6.68 ± 0.69 to 3.71 ± 3.23 (-45%, $p = 0.0122$). No significant changes were observed in symptoms of cervical and shoulder muscle pain or dizziness ($p = 0.7245$ and $p = 0.5211$, respectively). These findings indicate that osteopathic interventions have a pronounced effect on local TMJ symptoms, reducing pain intensity, the frequency of clicks, and headaches by nearly half, while secondary symptoms appear to require a more comprehensive, multidisciplinary approach. The results support the integration of osteopathic manipulative treatment and cranial osteopathy into interdisciplinary rehabilitation programs for patients with temporomandibular disorders and provide a foundation for further randomised clinical trials. Future research should focus on multicenter, randomized controlled studies with longer follow-up periods to evaluate the long-term efficacy of osteopathic interventions, as well as exploring their combination with other rehabilitation approaches, including psychotherapeutic strategies aimed at managing secondary symptoms and improving overall quality of life in patients with TMJ dysfunction.

ACKNOWLEDGEMENTS

None.

FUNDING

None.

CONFLICT OF INTEREST

None.

REFERENCES

- [1] Zieliński G, Pająk-Zielińska B, Ginszt M. A meta-analysis of the global prevalence of temporomandibular disorders. *J Clin Med.* 2024;13(5):1365. DOI: [10.3390/jcm13051365](https://doi.org/10.3390/jcm13051365)
- [2] Alqutaibi AY, Alhammadi MS, Hamadallah HH, Altarjami AA, Malosh OT, Aloufi AM, et al. Global prevalence of temporomandibular disorders: a systematic review and meta-analysis. *J Oral Facial Pain Headache.* 2025;39(2):48–65. DOI: [10.22514/jofph.2025.025](https://doi.org/10.22514/jofph.2025.025)
- [3] Alrizqi AH, Aleissa BM. Prevalence of temporomandibular disorders between 2015 and 2021: A literature review. *Cureus.* 2023;15(4):e37028. DOI: [10.7759/cureus.37028](https://doi.org/10.7759/cureus.37028)
- [4] Vieira LS, Pestana PRM, Miranda JP, Soares LA, Silva F, Alcantara MA, et al. The efficacy of manual therapy approaches on pain, maximum mouth opening and disability in temporomandibular disorders: A systematic review of randomised controlled trials. *Life.* 2023;13(2):292. DOI: [10.3390/life13020292](https://doi.org/10.3390/life13020292)
- [5] Herrera-Valencia A, Ruiz-Muñoz M, Martín-Martín J, Cuesta-Vargas A, González-Sánchez M. Efficacy of manual therapy in temporomandibular joint disorders and its medium- and long-term effects on pain and maximum mouth opening: A systematic review and meta-analysis. *J Clin Med.* 2020;9(11):3404. DOI: [10.3390/jcm9113404](https://doi.org/10.3390/jcm9113404)

- [6] Pawlowski A, Lannergård J, Gonzalez-Miro M, Cao D, Larsson S, Persson JJ, et al. A group B Streptococcus alpha-like protein subunit vaccine induces functionally active antibodies in humans targeting homotypic and heterotypic strains. *Cell Rep Med*. 2022;3(2):100511. DOI: [10.1016/j.xcrm.2022.100511](https://doi.org/10.1016/j.xcrm.2022.100511)
- [7] Makichyan T, Frolov V, Habadze Z, Starodubtseva E, Dolzhikov N, Avetisian G, et al. [Osteopathic approaches in the diagnosis and treatment of temporomandibular joint dysfunction: An interdisciplinary review](#). *Georgian Med News*. 2025;367:18–24.
- [8] Cuccia AM, Caradonna C, Annunziata V, Caradonna D. Osteopathic manual therapy versus conventional conservative therapy in the treatment of temporomandibular disorders: A randomized controlled trial. *J Bodyw Mov Ther*. 2010;14(2):179–84. DOI: [10.1016/j.jbmt.2009.08.002](https://doi.org/10.1016/j.jbmt.2009.08.002)
- [9] Nahian A, Mathew JJr. [Osteopathic manipulative treatment: Facial muscle energy, direct MFR, and BLT procedure – for TMJ dysfunction](#). In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023.
- [10] Milutka YA, Yushmanov IG, Badmaeva AN. Possibilities of osteopathic correction in complex therapy of temporomandibular joint dysfunction. *Russ Osteopat J*. 2019;(1–2):43–50. DOI: [10.32885/2220-0975-2019-1-2-43-50](https://doi.org/10.32885/2220-0975-2019-1-2-43-50)
- [11] The World Medical Association. Declaration of Helsinki: Ethical Principles for Medical Research Involving Human Subjects [Internet]. [cited 2025 November 12]. Available from: <https://www.wma.net/what-we-do/medical-ethics/declaration-of-helsinki/>
- [12] Asquini G, Pitance L, Michelotti A, Falla D. Effectiveness of manual therapy applied to craniomandibular structures in temporomandibular disorders: A systematic review. *J Oral Rehabil*. 2022;49(5):585–602. DOI: [10.1111/joor.13299](https://doi.org/10.1111/joor.13299)
- [13] Pawłowski J, Pawłowska KM, Grochulska A. Osteopathy treatment of temporomandibular joint dysfunction in young teens. *J Pre-Clin Clin Res*. 2024;18(4):299–302. DOI: [10.26444/jpccr/198031](https://doi.org/10.26444/jpccr/198031)
- [14] von Piekartz H, Lüdtke K. Effect of treatment of temporomandibular disorders (TMD) in patients with cervicogenic headache: A single-blind, randomized controlled study. *Cranio*. 2011;29(1):43–56. DOI: [10.1179/crn.2011.008](https://doi.org/10.1179/crn.2011.008)
- [15] Milutka YA, Fortin AE. Possibilities and organizational problems of diagnostics and treatment of patients with the syndrome of temporomandibular joint pain dysfunction. *Russ Osteopath J*. 2020;4: 95–116. DOI: [10.32885/2220-0975-2020-4-95-116](https://doi.org/10.32885/2220-0975-2020-4-95-116)
- [16] Martyusheva MV, Astashina NB, Shchekolova NB. An interdisciplinary approach to the diagnosis and treatment of patients with a dysfunctional condition of the temporomandibular joint. *Probl Stomatol*. 2023;19(3): 108–13. DOI: [10.18481/2077-7566-2023-19-3-108-113](https://doi.org/10.18481/2077-7566-2023-19-3-108-113)
- [17] Easterbrook S, Keys J, Talsma J, Pierce-Talsma S. Osteopathic manipulative treatment for temporomandibular disorders. *J Am Osteopath Assoc*. 2019;119(6):e29–30. DOI: [10.7556/jaoa.2019.071](https://doi.org/10.7556/jaoa.2019.071)
- [18] Schiffman E, Ohrbach R, Truelove E, Look J, Anderson G, Goulet JP, et al. Diagnostic criteria for temporomandibular disorders (DC/TMD) for clinical and research applications: Recommendations of the international RDC/TMD consortium network* and orofacial pain special interest group†. *J Oral Facial Pain Headache*. 2014;28(1): 6–27. DOI: [10.11607/jop.1151](https://doi.org/10.11607/jop.1151)
- [19] Garstka AA, Kozowska L, Kijak K, Brzózka M, Gronwald H, Skomro P, et al. Accurate diagnosis and treatment of painful temporomandibular disorders: A literature review supplemented by own clinical experience. *Pain Res Manag*. 2023;2023:1002235. DOI: [10.1155/2023/1002235](https://doi.org/10.1155/2023/1002235)
- [20] Manfredini D. Tinnitus in temporomandibular disorders patients: Any clinical implications from research findings? *Evid Based Dent*. 2019;20(1):30–1. DOI: [10.1038/s41432-019-0012-y](https://doi.org/10.1038/s41432-019-0012-y)
- [21] Liou YJ, Bai YM, Tsai SJ, Chen TJ, Chen MH, Lo WL. Bidirectional associations of temporomandibular joint disorders with major depressive and anxiety disorders. *J Evid Based Dent Pract*. 2023;23(2):101860. DOI: [10.1016/j.jebdp.2023.101860](https://doi.org/10.1016/j.jebdp.2023.101860)

Чакалык-төмөнкү жаак муунунун дисфункциясын остеопатиялык дарылоо

Рахат Абирова

Медицина илимдеринин кандидаты, доцент

И.К. Ахунбаев атындагы Кыргыз мамлекеттик медициналык академиясы

720020, Ахунбаев көч., 92, Бишкек ш., Кыргыз Республикасы

<https://orcid.org/0000-0001-5204-5583>

Абдыракман Ешиев

Медицина илимдеринин доктору, профессор, Кыргыз Республикасынын Улуттук илимдер

академиясынын корреспондент-мүчөсү

Кыргыз Республикасынын Улуттук илимдер академиясынын Түштүк бөлүмүнүн медициналык жана

биологиялык көйгөйлөрдү илимий изилдөө институту

723500, Өзгөн көч., 130-А, Ош ш., Кыргыз Республикасы

<https://orcid.org/0000-0003-2617-8360>

Аннотация. Чакалык-төмөнкү жаак муунунун (ЧТЖМ) дисфункциясы бейтаптардын жашоо сапатына олуттуу таасир тийгизген жаак-жүз аймагынын эң кеңири таралган патологияларынын бири болуп саналат. Акыркы жылдары бул патологияны дарылоодо дары-дармектүү эмес ыкмаларга, анын ичинде остеопатиялык мануалдык дарылоо ыкмаларына көбүрөөк көңүл бурулууда. Бул изилдөөнүн максаты ЧТЖМ дисфункциясы бар бейтаптарда остеопатиялык манипуляциялык дарылоонун жана краниалдык остеопатиянын натыйжалуулугун баалоо болду. Изилдөөгө оору синдрому, төмөнкү жаактын кыймылынын чектелиши жана булчуң-тондук дисбалансынын белгилери бар бейтаптар камтылды. Остеопатиялык кийлигишүүлөрдүн комплекси жумшак ткандарды коррекциялоо, постизометриялык релаксация, краниалдык жана висцералдык методикаларды камтыды, алар баш сөөктүн структураларынын физиологиялык кыймылдуулугун калыбына келтирүүгө жана жебе булчуңдарынын функциясын нормалдаштырууга багытталган. Изилдөөнүн жүрүшүндө остеопатиялык дарылоодон кийин төмөнкү жаак аймагындагы оору синдрому 6,1 баллдан 3,1 баллга чейин азайганы, ал эми ЧТЖМ дагы оорулуу чыкылдак 7,4 баллдан 2,8 баллга чейин азайганы аныкталды ($p = 0,022$). Ошондой эле ЧТЖМ дын функционалдык абалынын жакшырышы байкалды, оозду ачуунун амплитудасы жогорулады жана баш оорууларынын жыштыгы азайды, алардын интенсивдүүлүгү 6,7 баллдан 3,5 баллга чейин төмөндөдү ($p = 0,044$). Изилдөөнүн натыйжалары остеопатиялык дарылоо курсунан кийин оору синдромунун ишенимдүү азайышын, оозду ачуунун амплитудасынын жогорулашын жана ЧТЖМ дын функционалдык абалынын жакшырышын көрсөттү. Ошондой эле цефалгиялык көрүнүштөрдүн жыштыгынын азайышы жана бейтаптардын жалпы абалынын жакшырышы белгиленди. Аныкталган клиникалык эффекттер ЧТЖМ дисфункциясы бар бейтаптарды пландуу түрдө калыбына келтирүүнүн комплекстүү программасына остеопатиялык мануалдык дарылоону жана краниалдык остеопатияны киргизүүнүн максатка ылайыктуулугун тастыктайт

Негизги сөздөр: жаак муунунун функциясынын бузулушу; жаак муунунун патологиясы; мануалдык терапия; краниалдык остеопатия; реабилитация

Остеопатическое лечение дисфункции височно-нижнечелюстного сустава

Рахат Абирова

Кандидат медицинских наук, доцент
Кыргызская государственная медицинская академия им. И.К. Ахунбаева
720020, ул. Ахунбаева, 92, г. Бишкек, Кыргызская Республика
<https://orcid.org/0000-0001-5204-5583>

Абдыракман Ешиев

Доктор медицинских наук, профессор, член-корреспондент
Национальной академии наук Кыргызской Республики
Научно-исследовательский институт медико-биологических проблем Южного отделения Национальной академии наук Кыргызской Республики
723500, ул. Узгенская, 130-А, г. Ош, Кыргызская Республика
<https://orcid.org/0000-0003-2617-8360>

Аннотация. Дисфункция височно-нижнечелюстного сустава (ВНЧС) является одной из наиболее распространенных патологий челюстно-лицевой области, оказывающих значительное влияние на качество жизни пациентов. В последние годы всё большее внимание уделяется немедикаментозным подходам к терапии данной патологии, в том числе методам остеопатического мануального лечения. Целью настоящего исследования являлась оценка эффективности остеопатического манипулятивного лечения и краниальной остеопатии у пациентов с дисфункцией ВНЧС. В исследование были включены пациенты с болевым синдромом, ограничением движений нижней челюсти и признаками мышечно-тонического дисбаланса. Комплекс остеопатических вмешательств включал техники мягкотканой коррекции, постизометрической релаксации, краниальные и висцеральные методики, направленные на восстановление физиологической подвижности структур черепа и нормализацию функции жевательной мускулатуры. В ходе исследования было установлено, что после остеопатического лечения интенсивность болевого синдрома в области нижней челюсти снизилась с 6,1 до 3,1 балла, а болезненные щелчки в ВНЧС уменьшились с 7,4 до 2,8 балла ($p = 0,022$). Также наблюдалось улучшение функционального состояния ВНЧС, с увеличением амплитуды открывания рта и снижением частоты головных болей, где их интенсивность уменьшилась с 6,7 до 3,5 балла ($p = 0,044$). Результаты исследования показали достоверное уменьшение болевого синдрома, увеличение амплитуды открывания рта и улучшение функционального состояния ВНЧС после курса остеопатического лечения. Также отмечено снижение частоты цефалгических проявлений и улучшение общего самочувствия пациентов. Выявленные клинические эффекты подтверждают целесообразность включения остеопатического мануального лечения и краниальной остеопатии в комплексную программу междисциплинарной реабилитации пациентов с дисфункцией ВНЧС.

Ключевые слова: нарушение функции челюстного сустава; патология челюстного сустава, мануальная терапия, краниальная остеопатия, реабилитация