Research Article

BIOMEDICAL Journal of Scientific & Technical Research

ISSN: 2574 -1241

DOI: 10.26717/BJSTR.2024.57.009051

Osteopathic Treatment in Patients with Disorders Temporomandibular X SF-36 and DC/TMD and Axis 1 and 2

Aparecido Domingues Vieira* and Júlia Parada and Pedro Vidinha

Scientific European Federation of Osteopaths-Escuela de Osteopatía de Madrid, Portugal

***Corresponding author:** Aparecido Domingues Vieira, Scientific European Federation of Osteopaths-Escuela de Osteopatía de Madrid, Portugal

ARTICLE INFO

Received: June 11, 2024

Published: July 23, 2024

Citation: Aparecido Domingues Vieira and Júlia Parada and Pedro Vidinha. Osteopathic Treatment in Patients with Disorders Temporomandibular X SF-36 and DC/TMD and Axis 1 and 2. Biomed J Sci & Tech Res 57(5)-2024. BJSTR. MS.ID.009051.

ABSTRACT

Temporomandibular joint dysfunction can have negative consequences on the individual's daily life activities. Temporomandibular disorders can cause pain in the joint region, decreased range of mouth opening, difficulty sleeping or unrefreshing sleep, resulting in loss of quality of life. Osteopathy uses non-evasive techniques with satisfactory results in pain and gains in range of motion. This research seeks to substantiate the importance of Osteopathy in the context of Temporomandibular Disorders.

Keywords: TMD; Osteopathy; SF-36; Axis 1e2; TMJ; Pain; Limitation; Temporomandibular; Posture; Mouth; Sleep; Depression

Summary

Temporomandibular joint (TMJ) dysfunction can have negative consequences on the individual's activities of daily living (ADL). Temporomandibular disorders (TMD) can cause pain in the joint region, decreased range of mouth opening, difficulty sleeping or unrefreshing sleep, resulting in loss of quality of life. Osteopathy uses non-evasive techniques with satisfactory results in pain and gains in range of motion. This research seeks to substantiate the importance of Osteopathy in the face of TMD.

Introduction

Temporomandibular dysfunction (TMD) is a term that applies to changes in functions related to the temporomandibular joint (TMJ), and masticatory structures associated. The chewing muscles in this dysfunction are the most affected [1]. TMD's, can generate postural changes in the body, although this subject is still discussed in the scientific [2]. The TMJ is interconnected with the postural system, depending on several factors for the its positioning. When poorly adapted to the postural tonic system, it can result in pain and inability. Controlling posture and normal balance depends on the integration of proprioceptive input from the body [1,2]. The stomatognathic system, however, fits into other systems such as: swallowing, breathing, cranio-sacral system and cranio-cervical posture. When interference occurs in any of these systems, we may observe abnormalities static or dynamic posture, generating instabilities in the body, including the TMJ [3]. TMD's They affect young women, aged approximately between 12 and 40 years old [4]. The etiology of TMD is multifactorial, such as changes in the growth of the skull bones, direct trauma, malocclusion of teeth, bruxism, headaches and neck pain. The habits continuous parafunctional movements can also generate changes in the tone of the masticatory muscles, or even micro traumas caused to this joint, by TMJ surgeries, rheumatic conditions, emotional stress, anxiety and poor posture may be related to the development of TMD [1].

Considering that this is a condition characterized by a set of signs and symptoms, these signs and symptoms can lead us to the diagnosis of TMD's. The TMD clinic can cause patients neck pain, headaches, increased muscle tone in the mouth, clenching teeth, fractures, or even sinusitis, rhinitis, migraine, pain nighttime, eye pain, irritability, constant fatigue, etc. [3]. The incessant pain associated with Sleep deprivation due to TMD's can lead to feelings of incapacity, frustration and depression [5]. Frequent pain can cause disability due to time, which can cause the sufferer of TMD inability to work, sleep, resulting in absence from work, loss of quality of life, in addition to the possible need for high expenditure on medication, depressive conditions etc. [6]. Constant TMJ pain can also be defined as chronic pain. More than 50 million individuals, an estimated 20.4% of the adult population, suffer from chronic pain arising of the ATM. The pain generated by the TMJ muscles can be accurately assessed by the pressure algometer. This instrument is widely used to quantify pain caused by pressure exerted in the muscle, being the most appropriate and accurate means of checking nociceptors by palpation. AND used perpendicularly to the muscle to be examined, and can be applied to various tissues body, as well as a variety of musculoskeletal conditions. To look through the algometer, the patient must report musculoskeletal conditions during the consultation [7].

The muscles most affected in orofacial pain is the internal pterygoid masseter and anterior temporal bundle [3]. However, these same symptoms can occur in isolation, without any association with TMD's. One of the biggest complaints of patients with TMD's is related to physical and mental disability due to unalterable orofacial pain [8]. Incessant pain leads to multiple forms of psychological suffering, such as anxiety and social isolation, which are related with the emotional and social aspects of quality of life. Using the variables for the DTM's, the DC/TMD, composed of a double system of axes diagnostic and classification system intended for clinical research into TMD's is an instrument that follows the biopsychosocial model of assessment and classification of TMD, Axis I leads us to (physical diagnoses) and Axis II, takes us to (psychosocial aspects) [9,10].

Questionnaires validated tests, such as the SF-36, can be used to assess quality of life, improve prognosis of the patient and draw up treatment plans. In these cases, the use of multidisciplinary treatment and with a biopsychosocial focus, it is extremely important for evaluation. The SF-36 is used to evaluate 8 domains: functional capacity, physical aspects, pain, general health, mental health, emotional aspects, social aspects and vitality [11]. Some Brazilian studies have used the index (SF36) and (DC/TMD) for classifying patients [12,13]. These questionnaires are also used in osteopathy, to assess the evolution of patients' quality of life. A Osteopathic is a form of manual therapy with its own method of diagnosis and treatment. Based on some principles such as the law of the artery, hypomobility and hypermobility, the structure governs function, somatic dysfunction and/or osteopathic dysfunction. These principles changed from one one way or another in their physiology, can produce chronic inflammatory processes, which increases the number of chemical mediators contained in the blood [14]. Osteopathy is a means therapy used to treat biomechanical problems, through manual procedures, being an alternative for the treatment of TMJ disorders.

In osteopathy, several manual therapy techniques are used with the aim of repositioning the joint that is in disarray, where passive movements are performed in the TMJ for this purpose [15]. Following osteopathic principles, it is important to consider the interrelationship functional relationship between the head, neck, TMJ and the body as a whole for good functioning of the ATM. This poor positioning of the TMJ can generate local pain, due to the great importance of the TMJ. in its functions such as speaking, breathing, swallowing and chewing [16]. Osteopathy can help these individuals with TMD dysfunction, providing more mobility and range in the joint, reducing tone in the muscles of the mouth with the aim of improving its mechanical function, corroborating quality of life and pain in all its aspects. Studies show that a low quality of sleep can worsen or aggravate chronic pain, and, on the contrary is also true [17]. Understanding sleep quality is an important part of an assessment comprehensive approach to chronic TMD pain disorders. The difficulty of assessing quality sleep is quantified according to the patient's complaint and through a questionnaire, a since polysomnography is a measure of biophysiological parameters of sleep. Through the patient's report, several factors must be taken into consideration, such as the onset of sleep, the sleep maintenance and adaptation to daytime drowsiness [7,18,19].

The purpose of this research is to evaluate and treat, with osteopathic techniques, patients with sleep disorders, due to pain that is related to TMD disorders, seeking to restore homeostasis with the aim of support the relevance and importance of osteopathic manual techniques in the treatment of TMDs and its consequences, with the main focus on the loss of sleep quality (Cid- 10 (k07.6) - Decs- A 14,907).

Hypothesis

Osteopathic treatment can lead to improvement of pain in the TMJ region, improvement of range of mouth movement and improving the quality of life of individuals with dysfunction temporomandibular.

Objectives

Promote a study on the importance of treating osteopathy in the TMJ region.

Materials and Methods

This study is a clinical trial carried out. 60 patients were recruited voluntarily through a public call and these were organized into two groups, so random, through a numerical sequence (www.randon.org). Group 1, with 30 patients, received osteopathic treatment, while group 2 (control) received 30 patients, who received guidance through an educational booklet. Both groups received a total of five visits. After signing the TCLE, the clinical evaluation began through a Osteopathic

assessment form, measuring pain using a pressure algometer and amplitude opening of the mouth, using the caliper. In addition to these data, the patient filled out the SF36 questionnaires, and the DC/TMD, an instrument for classifying your TMD, with the help of the therapist. After the evaluation, group 1 received osteopathic treatment. Osteopathic treatment, occurred weekly for 4 weeks. At the last meeting, that is, at appointment 5, after care, the patient was reassessed using the same assessment instruments. The reevaluation began with measuring pain, using a pressure algometer, followed by measuring the range of mouth opening, using the caliper, as well as filling the SF36 and DC/TMD questionnaires, with the help of the therapist. Group 2, which was the control group, had an assessment at the first meeting and received guidance through a booklet educational. After signing the TCLE, the clinical evaluation began, using a questionnaire Osteopathic evaluation, pain measurement, using a pressure algometer, and the amplitude of mouth opening using the caliper. In addition to these data, the patient completed the of the SF36 questionnaires and the DC/TMD, an instrument for classifying your TMD, with the help of the therapist. After evaluation, group 2 received guidance through an educational booklet, which occurred weekly for another 4 weeks via telephone call or WhatsApp, as per agreed with the volunteer. For the fifth orientation, a face-to-face appointment was scheduled the guidelines were reinforced through an educational booklet, followed by reevaluation. If began the clinical evaluation using an Osteopathic evaluation form, measuring pain using using a pressure algometer and mouth opening amplitude using a caliper. In addition of these data, the patient completed the SF36 and DC/TMD questionnaires, instrument to classify your TMD, with the help of the therapist. With the collections completed, the patients in this group, called the control group, received, as a thank you, three Osteopathy appointments, which were scheduled in the subsequent three weeks, aiming to treatment of your complaint at no cost to the patient.

Study Design (Figure 1)

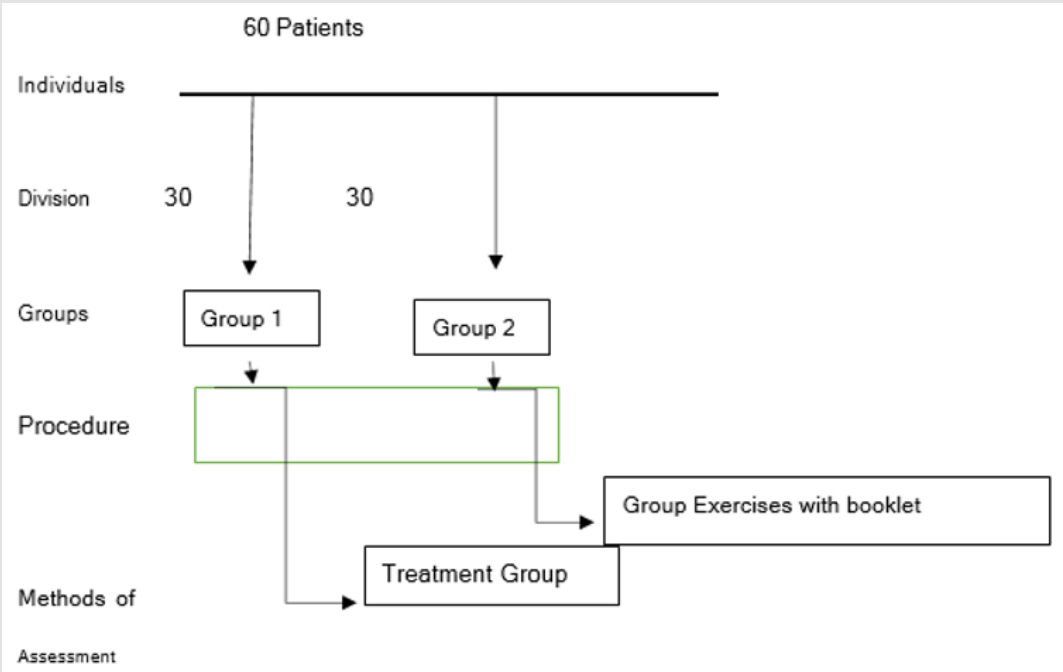


Figure 1: Study design.

Study Protocol

After signing the TCLE, the clinical evaluation began through an evaluation form Osteopathic, measuring pain using a pressure algometer and the opening amplitude of the mouth through the caliper. In addition to these data, the patient filled out the SF36 and DC/TMD, instrument for classifying your TMD, with the help of the therapist. After evaluation, the group 1 received osteopathic treatment. Group 2, which was the control group, had in the first I received an assessment and received guidance through an educational booklet. After signing of the TCLE, the clinical evaluation began through an Osteopathic evaluation form, measurement pain measurement using a pressure algometer and mouth opening amplitude using a caliper. In addition to these data, patients completed the SF36 and DC/TMD questionnaires, instrument to classify your TMD with the help of the therapist. After evaluating group 2, received guidance through an educational booklet, which took place weekly for another 4 weeks via phone call or WhatsApp, as agreed with the volunteer.

Study Population

60 patients were recruited voluntarily through a public call.

Study Groups

This study consists of a clinical trial carried out, 60 patients were recruited.

Sampling and Sample Size

60 patients and were randomly organized into two groups using a sequence numeric (randon.org).

Randomization and Allocation

They were organized into two groups, Group 1 Treatment with osteopathy and Group 2 Exercises according to the booklet, randomly using a numerical sequence (www.randon.org).

Selection Criteria

A sample of 60 patients of both sexes aged at least 18 years and aged maximum age of 45 years, which after evaluation following the TMD diagnostic criteria.

Study Variables

The variables were: age, sex, mouth width and perception of force exerted on the mouth. algometer.

Assessment Procedures

Data collection began on August 2, 2022 until November 27, 2022, consisting of two stages. The sample was divided into 2 groups: Group 1, Treatment with osteopathy and Group 2, Exercises according to the booklet. Guidelines, assessments and treatments were carried out by only 1 researcher. To collect pain measurements, we used the pressure algometer and mouth opening amplitude using the caliper. In addition to these data, the patient filled out the SF36 and DC/TMD questionnaires, an instrument for classifying their DTM with the assistance of the researcher. Regions treated in occipital patients, cranial sutures, upper and middle cervical, mandible, maxilla, temporal muscles, masseter muscles, hinge-C7T1 and diaphragm. Although We did not follow a protocol as each patient had their own individuality.

Statistical Analysis

Analyzes were performed using GraphPad Prism software (Version 8.0, San Diego, HERE). Descriptive analysis was used to characterize the individuals. To evaluate the normality, the Kolgomorov-Smirnov test was performed. The results were described as average and standard deviation, median (minimum; maximum) and n (%). To analyze the demographic data, it was Student's t-test and Fisher's test were used. To analyze the opening of the TMJ, the test was used one-way ANOVA with Tukey post-test. To analyze the variables relating to habits and presence of pain, the Fisher test was used. To analyze the algometry variables, it was the Kruskal-Wallis test with Dunn's post-test was used. To analyze the SF-36 questionnaire variable, the Kruskal-Wallis test with post-test was used. from Dunn's. To analyze correlations between domains, the Spearman test was used. For analysis of the Axis 1/Axis 2 variable, the Kruskal-Wallis test with Dunn's post-test was used. To analyze the DC-TMD variable, the Chi-square test was used.

Results

Variable-01 (Table 1)

Table 1: Demographic and anthropometric data of the patient sample.

Variable	Group 1 n = 26	Group 2 n = 34	P
Age years	38±5.2	35.1±6.9	0.081
Sex (n, %)			0.49
Feminine	23 (88.5%)	27 (79.4%)	
Masculine	3 (11.5)	7 (20.6%)	

Group 1 (This is the Osteopathy Treatment Group), and Group 2 (This is Group 2 Control with Exercises). No participant in either group had rheumatic disease, autoimmune disease, fibromyalgia, wore dental prostheses or took painkillers. In the variable: age and sex, there was no difference in (P) between group 1 and group 2. Table 1 - Patient Registration, where the personal information of the patient is collected patient, such as name, age, address and contacts, inclusion and exclusion criteria, etc. (Figure 1). Descriptive analysis was carried out to characterize the patients. For the assessment of normality was used Kolgomorov-Smirnov. To collect the results, they were described in mean and standard deviation, median (minimum; maximum) and n (%). And to collect data analysis demographics, the Student's t test was used for variables such as (2 groups) and Fisher's test compare (male with female, with pain/without pain, yes/no, tec...).

Variable-02 (Table 2)

Table 2: Data regarding the habits and pain of the patient sample.

Variable	Group 1 n = 26	Group 2 n = 34	P
Parafunctional habits			
Pre (Y/N)	26/0	4/30	
Post (Y/N)	14/10*	10/21	0.575
P	0.0002	0.069	
Trauma to the face			
Pre (Y/N)	4/22	8/26	
Post (Y/N)	2/23	7/24	0.167
P	0.668	> 0.999	
Headache			
Pre (Y/N)	24/2	3/31	
Post (Y/N)	10/15*	13/18*	> 0.999
P	<0.0001	<0.0001	
Migraine			
Pre (Y/N)	8/18	10/24	

Post (Y/N)	3/22	1/30*	0.314
P	0.173	0.006	
Joint sound in TMJ			
Pre (Y/N)	3/23	8/26	
Post (Y/N)	12/13*	10/21*	0.176
P	0.006	0.0005	
Orofacial pain			
Pre (Y/N)	26/0	32/2	
Post (Y/N)	5/20*	18/13*†	0.006
P	<0.0001	0.0008	
Deviation in opening			
Pre (Y/N)	24/2	4/30	
Post (Y/N)	3/22	13/18*†	0.0007
P	0.668	0.0002	

In parafunctional habits, there was a difference in (P) in group 2 Exercises, in relation to Group 1, after treatment. As for patients with trauma to the face, there was no improvement in (P) in the group 1, in relation to Group 2 exercises after treatment. In headache, there was a difference of improvement in (P) in both groups 2, after treatment. Migraine, there was a difference in improvement of (P) in group 2 in relation to Group 1 osteopathic treatment, in the after treatment. The sound joint in the TMJ, there was no difference in improvement in (P) in the two groups after treatment. A orofacial pain, there was a difference in (P) in both groups 2, but in group 1 the improvement was more important after treatment. In the Deviation in mouth opening, there was a difference of (P) in group 2 in relation to Group 1 treatment, in the after treatment. To analyze the opening of the ATM, it was the one-way ANOVA test with Tukey post test was used.

Variable-3

Without assistance/without pain, there was a difference in (P), in pain when opening the mouth, at the moment of opening without the help of the therapist, in both groups 2, in post-treatment. Without assistance/in pain, there was a difference in (P), pain when opening the mouth, when opening without the aid of the therapist, in both groups 2, in post-treatment. To analyze the variables relating to habits and presence of pain, the Fisher test was used (Table 3).

Table 3: Data regarding the opening of the TMJ of the patient sample.

Variable	Group 1 n = 26	Group 2 n = 34	P
No assistance/no pain			<0.0001
Pre	3.1±1.0	3.6±0.9	
Powders	3.8±0.8*	4.3±0.6*	
Without assistance/in pain			0.0001
Pre	4.1±1.1	4.5±1.0	
Powders	4.7±1.1*	5.1±0.7*	

Algometry (Table 4):

Table 4: Data regarding algometry in the patient sample.

Variable	Group 1 n = 26	Group 2 n = 34	P
Posterior temporal (D)			<0.0001
Pre	1653 (600;2500)	2138 (1200;4300)	
Post	2485 (1470;6200)*	2943 (1300;6170)*†	
Posterior temporal (E)			<0.0001
Pre	1790 (0;2700)	2145 (230;4000)	
Post	2220 (1475;6200)*	3007 (1380;4320)*†	
Medium storm (D)			<0.0001
Pre	1700 (0;2700)	2120 (1280;4100)	
Post	2690 (0;6200)*	3280 (1290;4120)*†	
Average storm (E)			<0.0001
Pre	1848 (0;3400)	2170 (1270;3100)	
Post	2720 (0;6200)*	3077 (1910;5250)*	
Anterior temporal (D)			<0.0001
Pre	2138 (1200;4300)	1930 (1200;3200)	
Post	2943 (1300;6170)*†	3545 (1800;4700)*†	
Previous temporal (E)			<0.0001
Pre	2145 (230;4000)	2133 (1200;3820)	
Post	3007 (1380;4320)*†	3380 (1665;4440)*†	
Masseter (D)			0.003
Pre	2120 (1280;4100)	1800 (700;3600)	
Post	3280 (1290;4120)*†	2254 (1050;3000)*	
Masseter (L)			0.0004
Pre	2170 (1270;3100)	1798 (1000;2700)	
Post	3077 (1910;5250)*	2100 (1180;3120)*	

Note: Difference from (P) means that pain sensitivity decreases.

In the Posterior Temporal (D), and Posterior Temporal (E), there was an improvement in the sensitivity of the pain in both groups, group 1 treatment and group 2 exercises, but pain improvement is observed in (P), post-treatment only in group 2 exercises.Middle Temporal (D), and Middle Temporal (E) there was an improvement in pain sensitivity in both groups, group 1 treatment and group 2 exercises, but the improvement in pain observed in (P) in both groups there was no difference between them. Anterior Temporal (D), and Anterior Temporal (E) there was an improvement in pain sensitivity in both groups, group 1 treatment and group 2 exercises, however the improvement in pain observed in (P), post-treatment only in group 2 exercises. Masseter (D), and Masseter (E) there was an improvement

in pain sensitivity in both groups, group 1 treatment and group 2 exercises, however the improvement in pain observed in (P), post-treatment in both groups 2 did not there was a difference between them [20].

Algometry: Pain can be quantified using an instrument called an algometer. One of the parameters that this instrument gives us, is to measure the pain threshold, which is applied a stimulus and When it starts to be painful, you can gauge the degree of painful stimulation. If the stimulus is mechanical, It is called Pressure Pain Threshold. The algometer is widely used in research to quantify patients' pain pre- and post-treatment. For analysis of algometry variables the Kruskal-Wallis test with Dunn's post-test was used.

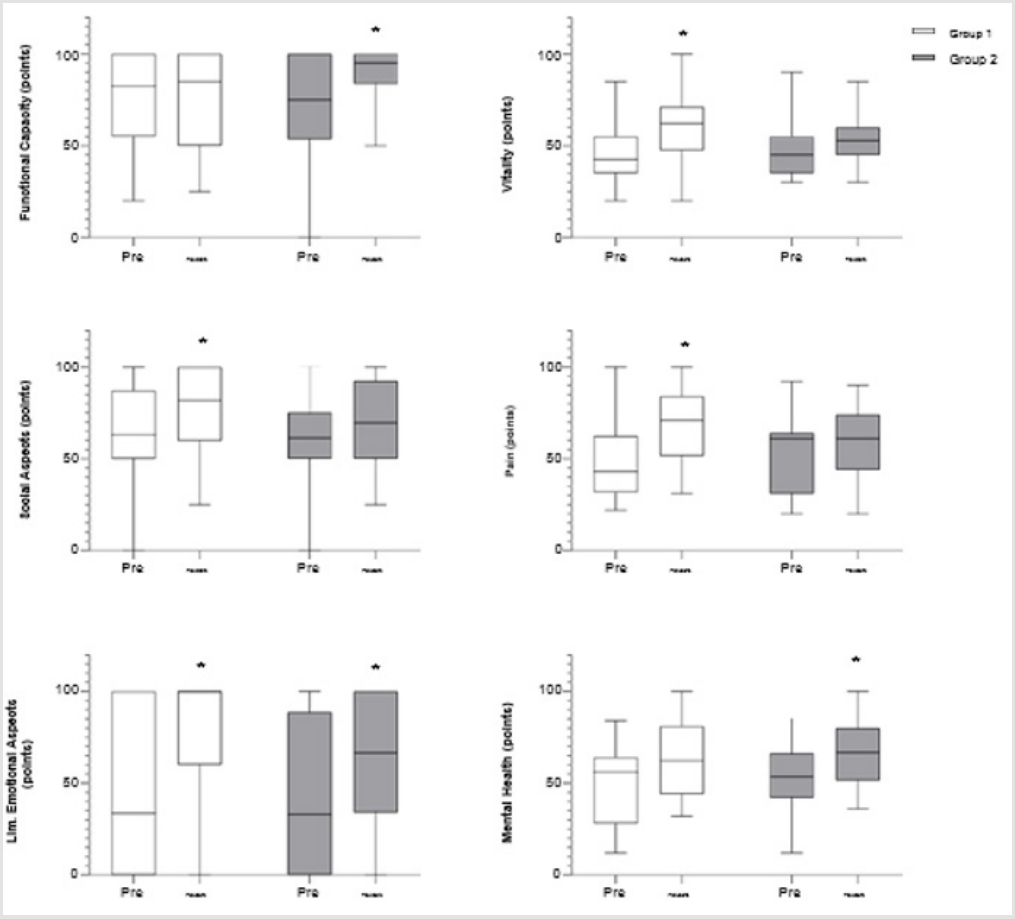
SF-36: The SF-36 questionnaire is widely used in health-related research to assess the quality of life of people in pre- and post-treatment. The SF-36 (Short-Form Health Survey). THE F- 36, was developed in 1992 by Ware and Sherbourne and is validated in Brazil [21-24]. For analysis of the SF-36 questionnaire variable, the Kruskal-Wallis test with Dunn's post-test was used. To analyze correlations between domains, the Spearman test was used. The Functional Capacity of the groups improved only in group 2 Exercises, after treatment and no difference between the two groups. In Limitation by Physical Aspects, there is no difference in statistics in the two groups. Because both groups have already started from the beginning of the statistics equals. In the Pain scale there was improvement only in group 1 Treatment, in relation to group 2 Exercises, and post-treatment. In General Health Status, there was improvement only in group 2.

Exercises and aftercare. In Vitality, there was improvement only in group 1 Treatment and post- treatment. In Social Aspects, there was improvement only in group 1 and post-treatment. In Limitations of Emotional Aspects, there was improvement in both groups, and without difference between the groups, as they had already started from the beginning of equal statistics. In Mental Health, there was improvement only in group 2. Treatment and post-treatment. An association of improvement was observed only in group 1 post-treatment. Justifying that there was an improvement in social aspects, in relation to improved vitality. He was A moderate association was observed with a positive R=0.48 between the two associations. Also there is an association of improvement only in group 1 post-treatment, justifying that there was improved vitality with improved pain. A moderate association was observed with a Positive R=0.72 between the two associations. If the pain is very prolonged or persistent, it can cause disability, limitations in the body and generate insomnia as it interferes with sleep [16,25-27]. To quantify pain in our research, we use the pressure algometer, as it is also widely used in health-related research human [28,29]. An association of improvement was observed only in group 2 post-treatment. Justifying that there was an improvement in emotional aspects, with an improvement in functional capacity. He was A moderate association was observed with a positive R=0.58 between the two associations. And also observed, an association of improvement only in group 2 exercises in post-treatment. Also justifying that there was an improvement in mental health with the improvement of emotional aspects of patients in group 2 exercises. A moderate association was observed with an R=0.45 positive between the two associations (Table 5) (Figures 2-4).

Table 5: Data referring to the SF-36 questionnaire in the patient sample.

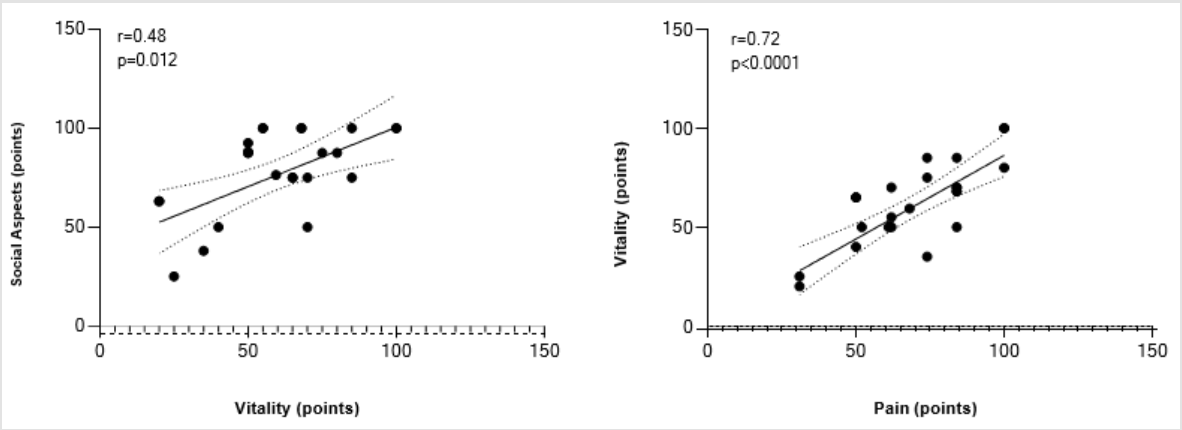
Variable	Group 1 n = 26	Group 2 n = 34	P
Functional capacity			0.029
Pre	82.5 (20;100)	75 (0;100)	
Post	85 (25;100)	95 (50;100)*	
Limit. Physical appearance			0.899
Pre	62.5 (0;100)	75 (0;100)	
Post	87.5 (0;100)	75 (0;100)	
Pain			0.005
Pre	43 (22;100)	64 (20;92)	
Post	71 (31;100)†	61 (20;90)	
General Health Status			0.07
Pre	49.5 (12;92)	62 (15;95)	
Post	54.4 (17;100)	64.5 (32;95)	
Vitality			0.016
Pre	42.5 (20;85)	45 (30;90)	
Post	62.2 (20;100)†	52.8 (30;85)	
Social aspects			0.018
Pre	63 (0;100)	61.2 (0;100)	
Post	82 (25;100)†	70 (25;100)	
Limit. Emotional Aspects			0.007
Pre	33.6 (0;100)	33 (0;100)	
Post	100 (0;100)†	66.5 (0;100)*	
Mental health			0.003
Pre	56 (12;84)	53.5 (12;85)	
Post	62.3 (32;100)	66.8 (36;100)*	

DOI: 10.26717/BJSTR.2024.57.009051



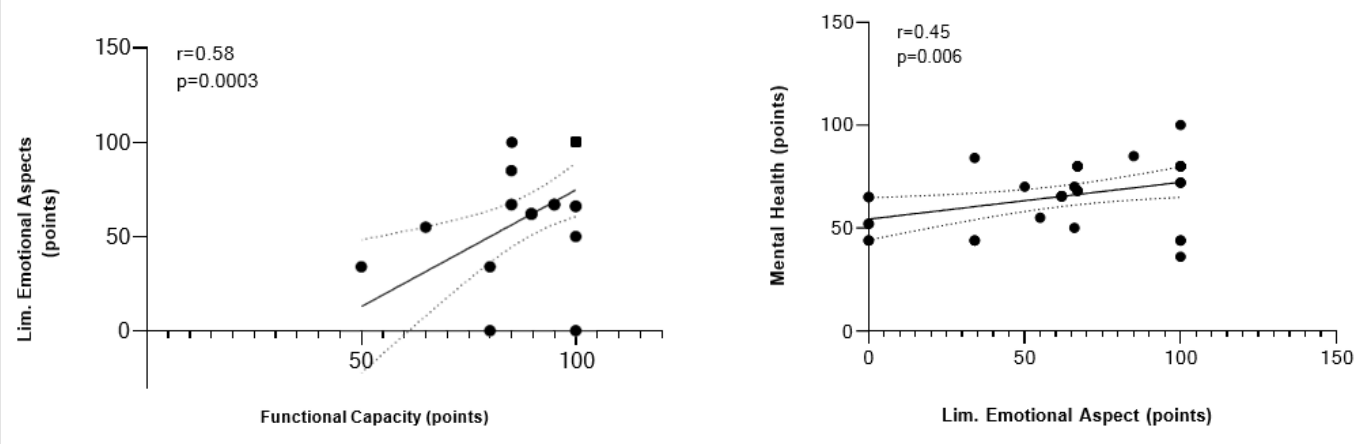
Note: *, p<0.05 when compared to the pre-moment. Kruskall-Wallis test.

Figure 2: Representation of SF-36 Questionnaire domain scores in the patient sample.



Note: Spearman test.

Figure 3: Association between domains of the SF-36 questionnaire in group 1, after intervention.

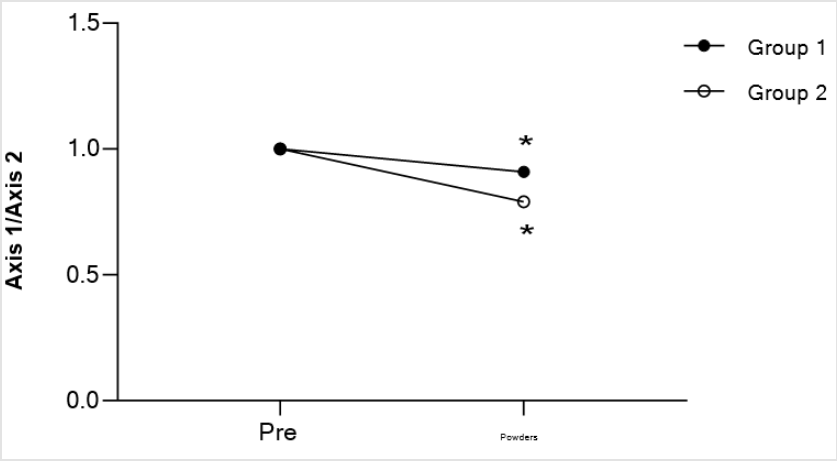


Note: Spearman test.
Figure 4: Association between domains of the SF-36 questionnaire in group 2, after intervention.

Axis 1/Axis 2 and DC-TMD: It was observed in axis 1 and 2, improvement in muscular disorders in both groups 1 and 2, in post-treatment with osteopathy in group 1 and post-exercise in group 2, and with no difference between groups. The graph shows a marked decrease in muscular disorders, among the group 1treatment with group 2 exercises. To analyze the Axis 1/Axis 2 variable, the Kruskal-Wallis with Dunn's post-test. In DC/TMD, there was no difference between the groups, however the two groups had, in percentage, almost equal starting from the beginning of pre-collection of pain in the ATM. Both groups had a moderate level of pain, where there was not such an improvement. significant pain in both groups. To analyze the DC-TMD variable, the Chi-test was used square (Table 6 & Figure 5).

Table 6: Data referring to Axis 1/Axis 2 and DC-TMD data in the patient sample.

Variable	Group 1	Group 2	P
Axis 1 and Axis 2			<0.0001
Pre	1 (0;4)	1 (0;3)	
Post	0 (0;3)*	0 (0;2)*	
DC-TMD			0.747
Painless	4 (16%)	4 (13.3%)	
Bearable	15 (60%)	16 (53.3%)	
More bearable	6 (24%)	10 (33.3%)	



Note: *, p<0.05 when compared to the pre-moment. Kruskal-Wallis test.
Figure 5: Representation of the Axis 1/Axis 2 variable in the patient sample.

Discussion

Our research included a sample of 60 patients, of both sexes, aged minimum of 18 years and maximum of 45 years, which after evaluation, following the diagnostic criteria of TMD (DC/TMD and Axis I and Axis II), an instrument I use to classify disorders in TMD, we use the SF-36. It was included in our research work as we want to prove the effectiveness of osteopathic treatment in patients with TMD, as shown in Figure 1 (in the study design). However, osteopathy has proven to be a great tool for treating TMJ, improvement in local pain and joint mobility, states authors such as Cuccia et al 2011 and Sandhouse, et al. 2020 [30,31]. According to Pereira, et al. [32], due to multiple variables, such as number limited number of studies, associated with different methodologies and outcomes, for him it is not clear whether the osteopathic interventions are in fact effective in treating TMD and suggests new studies to better understanding of the topic in relation to ATM. The study shown by Herzhaft, et al. [33], already says the opposite. He was one of the first to bring together lactation consultants and osteopaths to address babies with biomechanical sucking difficulties. This study concludes that osteopathy It can be used as a therapeutic means for TMJ and orofacial pain. In our study, it is clear that osteopathy adds to this topic. In studies by Easterbrook, et al. 2019, and in the findings of study Mineirinho, et al. [34,35], which was a pilot study, concluded that the use of treatment manipulative osteopathic surgery on the skull was an effective treatment modality in patients with temporomandibular dysfunction.

The study concludes, with positive results in the treated groups, and encourages new research into osteopathic treatment performed on the skull. In our work, when we worked on the upper cervical and occipital areas there was a significant improvement in local pain, We verified this using the algometer. Cuccia, et al. 2011, highlights the importance of osteopathy for patients with dysfunction temporomandibular disorder [36] showed that two therapeutic modalities presented results similar clinical findings in patients with TMD, even those who used medications with was better in the control group. He concludes his conclusion and suggests osteopathy as an option valid for the treatment of TMD. In the pilot study carried out by Heres, et al. [37], it goes from meeting with that of Cuccia, et al. where he demonstrated that when using osteopathy, there was a reduced local pain and improved temporomandibular dysfunction, having a positive impact on quality of life after cranial osteopathic treatment. But for Bernadino 2012 and 2015 [16,28], the pressure algometer is a reliable instrument for checking the blood pressure threshold. muscle pain and is often cited in research, however, when used in research it did not have good accuracy to evaluate the migraine pain threshold in patients aged 7 to 10 years with this pathology.

Therefore, the authors Palacios et al, 2017 and Piovesan 2001[38-41], even published articles in newspapers citing the accuracy of the algometer [41] stated in their article that the algometer is a reliable instrument to be used even in elderly people with low cognition, according to Lara 2015 and Jadb 2007 [39,40].In the SF-36 table, the data collected showed improvement in the pre- and post-treatment, in the group 1 and group 2 in relation to pain and emotional aspects. Some authors such as Evanildo, et al. [11], Luedtke 2017 [26] and Yasmin S, et al [25], reinforce that to assess mental health it does not present reliability. We also do not think it is safe to say something so important with the data collected. on this topic. Above all, it was observed in the research by Fiorillo 2020 [42], that when the problem is related to malocclusion of the teeth, or the problem is found in the TMJ itself, there is recommendation for referral to the dentist. Our study is in line with Fiorillo 2020, in which it says that osteopathy does not treat malocclusion of the teeth. In the chart table related to axis I and II, there was improvement in group 1 and group 2. The axis I and II table is very used for the diagnosis of TMJ-related disorder. Some authors such as Calixtre L, et al., Silva L, et al. [10,43], report that DC/TMD means, Diagnostic Criteria for Temporomandibular Disorders and axis I and II is a good basis for evaluating disorders in TMJ, where it is possible to predict an important disorder in the TMJ.

On the other hand, in relation to the table of DC/TMD, pain improvement was observed in our study, however, the improvement was not important as we expected. There are some criteria for the evaluation and use of DC/TMD, say these authors Calixtre L, et al., Jadb, et al. and Silva, et al. [10,43,44] that it takes a lot of Be careful when asserting depression using this tool. In our study we agree with authors, in stating something important through the data collected in DC/TMD [45,46].

Limitation of the Study

Send messages to patients to remind them to do the exercises correctly and notify patients in both groups not to miss scheduled appointments.

Prospective of the Study

The objective of this study was to offer, with our osteopathic treatment, pain relief in TMJ region and improve the quality of life in general. More future studies may include a larger sample, bringing a different methodology to our way of evaluating and treating patients. patients with TMD disorders, to help improve in a more precise way the osteopath in clinical treatment or in guidance as a form of exercises to do at home.

Implications for Clinical Practice

We concluded that with well-executed TMJ exercises the result was equal to the Group 1 who received osteopathic treatment.

Conclusion

Osteopathy has proven to be a great alternative for improving the mobility of the TMJ joint and improving pain in the chewing muscles of the mouth. Furthermore, osteopathy should be indicated by professionals who treat this joint. Today there are already valid tools, to

diagnose possible TMJ disorders, which were reported in our study as the DC/TMD, axis I and axis II, which is a sum that suggests pathologies in it.

Conflicts of Interest

The authors belong to the Madrid School of Osteopathy and evaluated people collected by common electronic call.

References

1. Renan-Ordine R, Alburquerque-Sendín F, De Souza DPR, Cleland JA, Fernández-De-Las- Penas C (2011) Effectiveness of myofascial trigger point manual therapy combined with a self-stretching protocol for the management of plantar heel pain: A randomized controlled trial. Journal of Orthopedic and Sports Physical Therapy 41(2): 43-50.
2. Renan-Ordine R, Alburquerque-Sendín F, De Souza DPR, Cleland JA, Fernández-De-Las- Penas C (2011) Effectiveness of myofascial trigger point manual therapy combined with a self-stretching protocol for the management of plantar heel pain: A randomized controlled trial. Journal of Orthopedic and Sports Physical Therapy 41(2): 43-50.
3. Fiorillo L (2020) Spine and TMJ: A pathophysiology report, p. 3-6.
4. Breton-Torres I, Trichot S, Yachouh J, Jammet P (2016) Dysfonction de l'appareil manducateur : rééducative and postural approaches. Vol. 117, Revue de Stomatologie, de Chirurgie Maxillo- faciale et de Chirurgie Orale. Elsevier Masson SAS: 217-222.
5. Kraus SL (2014) Characteristics of 511 patients with temporomandibular disorders referred for physical therapy. Oral Surg Oral Med Oral Pathol Oral Radiol 118(4): 432-439.
6. Bitiniene D, Zamaliauskiene R, Kubilius R, Leketas M, Gailius T, et al. (2018) Quality of life in patients with temporomandibular disorders. A systematic review. Stomatology 20(1): 3-9.
7. Neto A, Sousa D, Batanete M, Caveirinha V, Moleirinho Alves P, et al. (2019) Effect of the dry needling vs manual myofascial therapy at the trigger points in temporomandibular joint dysfunction. Ann Med 51(sup1): 226-226.
8. Gesslbauer C, Vavti N, Keilani M, Mickel M, Crevenna R (2018) Effectiveness of osteopathic manipulative treatment versus osteopathy in the cranial field in temporomandibular joint disorders–a pilot study. Disabil Rehabil 40(6): 631-636.
9. Schiffman E, Ohrbach R, Truelove E, Look J, Anderson G, et al. (2014) Diagnostic Criteria for Temporomandibular Disorders (DC/TMD) for Clinical and Research Applications: Recommendations of the International RDC/TMD Consortium Network* and Orofacial PainSpecial Interest Group†. J Oral Facial Pain Headache28(1): 6-27.
10. Silva LS da, Barra LHT, Pachioni CAS, Ferreira DMA, Pereira JDA dos S (2010) Evaluation Preventive Temporomandibular Dysfunction. Colloquium Vitae 3(1).
11. Evanildo A, Medeiros C De (2016) XII Extension, Teaching and Initiation Meeting. Unicatholic - Catholic University Center of Quixadá (2010): 2-5.
12. List T, Jensen RH (2017) Temporomandibular disorders: Old ideas and new concepts. Cephalalgia 37(7): 692-704.
13. Dubrovsky B, Janal MN, Lavigne GJ, Sirois DA, Wigren PE, et al. (2017) Depressive symptoms account for differences between self-reported versus polysomnographic assessment of sleep quality in women with myofascial TMD. J Oral Rehabil 44(12): 925-933.
14. Mansilla Ferragud P, Boscá Gandia JJ (2008) Effect of manipulating the occipito-atlo-axoidea at the opening of the mouth. Scientific Osteopathy 3(2): 45-51.
15. Ambra Michelotti, Giorgio Iodice, Stefano Vollaro, Michel H Steenks, Mauro Farella (2012) Evaluation of the short-term effectiveness of education versus an occlusal splint for the treatment of myofascial pain of the jaw muscles. JADA 143: 47-53.
16. (2015) Temporomandibular D, Orofacial ED lara tolentino ferreira osteopathy as nas therapeutic means.
17. Van Grootel RJ, Buchner R, Wismeijer D, Van Der Glas HW (2017) Towards an optimal therapy strategy for myogenous TMD, physiotherapy compared with occlusal splint therapy in an RCT with therapy-and-patient-specific treatment durations. BMC Musculoskelet Disord 18(1).
18. Garrigós-Pedrón M, La Touche R, Navarro-Desentre P, Gracia-Naya M, Segura-Ortí E (2018) Effects of a Physical Therapy Protocol in Patients with Chronic Migraine and Temporomandibular Disorders: A Randomized, Single-Blinded, Clinical Trial. J Oral Facial Pain Headache 32(2): 137-150.
19. Paço M, Peleteiro B, Duarte J, Pinho T (2016) The Effectiveness of Physiotherapy in the Management of Temporomandibular Disorders: A Systematic Review and Meta-analysis. J Oral Facial Pain Headache 30(3): 210-220.
20. Amarante E de L, Lima JAS de, Bandeira RN, Moura APA de, Pessoa LS de F, et al. (2018) Masseter muscle surface electromyography in college students with a high degree of anxiety and temporomandibular disorder. CEFAC Magazine 20(1): 44-52.
21. Bilir Kaya B, İçağasıoğlu A (2018) Reliability and validity of the Turkish version of short form 36 (SF-36) in patients with rheumatoid arthritis. Journal of Surgery and Medicine 2(1).
22. Kim B, Chae J, Kim EH, Yang HI, Cheon JH, et al. (2021) Physical activity and quality of life of patients with inflammatory bowel disease. Medicine (United States) 100(27).
23. Davenport TE, Stevens SR, Baroni K, Mark Van Ness J, Snell CR (2011) Reliability and validity of Short Form 36 Version 2 to measure health perceptions in a sub-group of individuals with fatigue. Disabil Rehabil 33(25-26).
24. Sygit K, Siedlecka-Pasierbiak K, Sygit M, Cipora E (2020) The quality of life of hospitalized seniors due to cardiovascular diseases in Poland. Int J Environ Res Public Health 17(10).
25. Yasmin S, Yusuf M, Md-Yasin M, Fairudz M, Miswan M (2022) Less pain predicts better quality of life among Malaysian patients with mild to moderate knee osteoarthritis?.
26. Luedtke K (2017) Open access Stratification of migraine patients based on provocation of dynamic pain in the upper cervical spine.
27. Burcu Bas, Dilara Kazan, Nukhet Kutuk, Vugar Gurbanov (2018) The effect of exercise on range of motion and pain after arthrocentesis of the ear-jaw articulation. J Oral Maxillofac Surg 76 (6): 1181-1186.
28. Bernardino Silva Nery (2012) Pain threshold measurements using pressure algometry in primary headache.
29. Jerez-Mayorga D, dos Anjos CF, de Cássia Macedo M, Fernandes IG, Aedo-Muñoz E et al. (2020) Instrumental validity and intra/inter-rater reliability of a novel low-cost digital pressure algometer. PeerJ 8.
30. Cuccia AM, Caradonna C, Caradonna D (2011) Manual therapy of the mandibular accessory ligaments for the management of temporomandibular joint disorders. Journal of the American Osteopathic Association 111(2): 102-112.
31. Sandhouse ME, Shechtman D, Fecho G (2020) Effect of cranial manipulative medicine osteopathy on visual function 116(11): 706-714.

32. Pereira De Paula R, Oliveira D, Almeida S, Garcia De Paula M, Alves LM, et al. Osteopathy as a treatment proposal for patients with dysfunctions temporomandibular disorders: systematic review: 29-47.
33. Herzhaft-Le Roy J, Xhignesse M, Gaboury I (2017) Efficacy of an Osteopathic Treatment Coupled with Lactation Consultations for Infants' Biomechanical Sucking Difficulties: A Randomized Controlled Trial. Journal of Human Lactation 33(1): 165-172.
34. Easterbrook S, Keys J, Talsma J, Pierce-Talsma S (2019) Osteopathic manipulative treatment for temporomandibular disorders. Journal of the American Osteopathic Association 119(6): e29-30.
35. Moleirinho-Alves P, Benzinho T, Paço M (2019) Effects of therapeutic exercise in TMDs with pain. Ann Med 51(sup1): 225-225.
36. Cuccia AM, Caradonna C, Annunziata V, Caradonna D (2010) Osteopathic manual therapy versus conventional conservative therapy in the treatment of temporomandibular disorders: A randomized controlled trial. J Bodyw Mov Ther 14(2): 179-184.
37. Heres Diddens A, Kraaijenga S, Coupé V, Hilgers F, van der Molen L, et al. (2017) The cost- effectiveness of TheraBite® as treatment for acute myogenic temporomandibular disorder. Cranio. Journal of Craniomandibular Practice 35(5): 290-297.
38. Palacios-Ceña M, Wang K, Castaldo M, Guerrero-Peral, Caminero AB, et al. (2017) Assessment of deep dynamic mechanical sensitivity in individuals with tension-type headache: The dynamic pressure algometry. European Journal of Pain (United Kingdom) 21(8): 1451-1460.
39. Prestes YA, Souza M dos S, Pereira MS, Ervati R, Campos HLM (2020) Intra-e reliability algometry inter-examiner to measure the pain threshold in the elderly institutionalized. Physiotherapy Research Magazine 10(3).
40. Piovesan EJ, Tatsui CE, Kowacs PA, Lange MC, Pacheco C, et al. (2001) Use of pressure algometry in determining trigeminal pain perception thresholds in healthy volunteers: a new study protocol. Arq Neuropsiquiatr 59(1): 92-96.
41. Palacios-Ceña M, Wang K, Castaldo M, Guerrero-Peral, Caminero AB, et al. (2017) Assessment of deep dynamic mechanical sensitivity in individuals with tension-type headache: The dynamic pressure algometry. European Journal of Pain (United Kingdom) 21(8): 1451-1460.
42. Fiorillo L (2020) Spine and TMJ: A pathophysiology report. p. 3-6.
43. Calixtre LB, Oliveira AB, de Sena Rosa LR, Armijo-Olivo S, Visscher CM, et al. (2019) Effectiveness of mobilization of the upper cervical region and craniocervical flexor training on orofacial pain, mandibular function and headache in women with TMD. A randomized, controlled trial. J Oral Rehabil 46(2): 109-119.
44. Jadb C, Ac C, Lcm L, Faria Jb E, Duarte JA, et al. (2007) Internal consistency and reproducibility of the Portuguese version of the diagnostic criteria in research for disorders temporomandibular disorders (RDC/TMD-AXIS II).

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2024.57.009051

Aparecido Domingues Vieira. Biomed J Sci & Tech Res