

The management of diagnosed Migraine patients through manual therapy: A Systematic and Critical Review

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Introduction: According to the French National Institute of Health and Medical Research (INSERM), approximately 15% of the global population is affected by migraine. However, the actual prevalence remains uncertain, as many individuals do not routinely seek medical care and resort instead to self-medication. In France, as reported by AMELI, around one-third of individuals with migraine in 2023 did not receive comprehensive medical follow-up. This information gap underscores the need for an improved understanding of the condition and the available treatments to optimise patient care.

Objective: The primary objective of this study is to evaluate the role of manual therapy in the management of migraine, with a view to potentially reducing the frequency and severity of attacks. Through a systematic and critical review of the literature, the aim is to highlight the most appropriate approaches for managing migraine through manual therapy.

Methods: A literature search was conducted using PubMed, PEDro, and the Cochrane Library databases for articles published between 1963 and 2024. Keywords included: headache, migraine disorder, manual therapy, physical therapy, musculoskeletal manipulation. The quality of each study was assessed using the SIGN grading system for randomised controlled trials (RCTs).

Results: Seven randomised controlled trials (RCTs), involving 453 participants, were selected. The findings suggest that Chiropractic manipulations (high-velocity low-amplitude [HVLA], Gonstead technique), as well as soft tissue relaxation techniques, may be effective in managing migraines (in terms of intensity, frequency, and duration of episodes) and associated comorbidities. Furthermore, these interventions appear to reduce the use of analgesic medications.

Discussion/conclusion: Manual therapy, including spinal manipulations and soft tissue techniques, may represent a viable therapeutic option for modulating the intensity, frequency, and duration of migraine attacks.

Indexing Terms: Migraine, manual therapy, systematic review, headache, manipulation, soft tissue, Gonstead, HVLA, LVHA, Trigger point, Active Release Technique.

Introduction

According to the French National Institute for Health and Medical Research (INSERM), migraine is a chronic illness affecting almost 15% of the world's population, with a higher prevalence in women (around 20%) than in men (around 10%). (9) In France, according to AMELI, around a third of migraine sufferers in 2023 will not have access to comprehensive medical care and will resort to self-medication. (8)

Migraines are characterised by intense headache attacks lasting from 4 to 72 hours. Migraines can be classified as migraine with or without aura, depending on the associated neurological symptoms, such as nausea, vomiting, photophobia and

“... the results found tend to show that Manual therapy, including joint and muscle work, would appear to be effective in the treatment of migraine ...”

phonophobia. These neurological disorders are transient and reversible. Migraine attacks are triggered by abnormal neuronal excitation and their origin is often multifactorial (environmental, genetic, etc).



The diagnosis of migraine is based primarily on questioning the patient and can be supported by the use of the diagnostic criteria of the International Classification of Headache Disorders 3rd edition (ICHD-3). (10)

Medication is the standard treatment. It includes the use of non-steroidal anti-inflammatory drugs (NSAIDs) or triptans to relieve symptoms. In women, other options such as botulinum toxin type A or anti-CGRP antibodies may be considered. (13) However, patient education remains a priority in the overall management of the disease. This global approach to management could include other therapeutic modalities such as manual therapy. (14)

In this context, the term 'manual therapy' is defined as the specific movement of the hands to improve tissue extensibility, increase range of motion, induce relaxation, mobilise or manipulate soft tissues and joints, modulate pain, and reduce swelling, inflammation or soft tissue restriction. (*Guide to Physical Therapist Practice - Second Edition, American Physical Therapy Association, 2001*). (15) In Chiropractic, manual therapy also includes the integration of physical exercise in order to offer complete patient management, in accordance with good practice recommendations. (16)

Although manual therapy is increasingly being explored as a therapeutic alternative, its effectiveness remains controversial. According to the systematic and critical review by Beier et al, 2022, there is an increased need for in-depth research into non-drug approaches, including manual therapy. (17)

The lack of clarity in the literature on migraines can add to the sense of confusion and uncertainty surrounding the subject. Although there is a large body of literature on the subject, there are differing views on the effectiveness of manual therapies. Despite the presence of recent articles exploring the use of manual therapy in the treatment of migraines, few comprehensively integrate manipulation, mobilisation and soft tissue management. As a result, manual therapy is not considered in the way it has been explained above, i.e. as a combination of these techniques.

The main aim of this study is to assess whether manual therapy is involved in the management of migraine patients and could reduce the intensity and frequency of pain. Through this systematic and critical analysis of the literature, our aim is to highlight the value, or otherwise, of manual therapy in the management of migraine patients.

Method

In order to establish a clear presentation of the methodology, the PRISMA editorial recommendations have been followed.

1. Eligibility criteria

In order to best answer the research question, in accordance with the chosen methodology and structure, it is necessary to mention the relevant selection criteria for the articles selected. This involves defining the study design used, the target population and the various assessment criteria consistent with the study.

2. Types of study

The aim of this systematic and critical review of the literature is to update the existing data, adapting it to the definition of manual therapy cited above, and therefore including more terms. The articles used in this review are randomised clinical trials (RCTs), which may come from any country as long as they are published in English or French. The aim of this type of study is to demonstrate the efficacy of a treatment by comparing randomly assigned groups. One group receives a so-called standard treatment for migraine, representing the allopathic approach, and acts as a control group. At the same time, one group receives the treatment under study, in this case manual therapy. Depending on their methodological qualities, a level of evidence may be attributed to them (grade A or B).

3. Population

The patients studied in the various RCTs were migraine sufferers of full age, diagnosed using the ICHD-3 10 international classification of headache disorders (Appendices 1 and 2). The subjects consented to the various studies and were also informed of the different treatment options available depending on the study.

4. Intervention

The intervention is represented by manual therapy including spinal joint techniques and soft tissue work.

5. Comparators

The comparator in this study includes everything that does not include manual therapy, i.e. the reference drug treatment, the placebo/sham manipulation, the non-treatment ... The sham manipulation represents a manipulation without cavitation of the joint, with a broad contact, far from the spinal column, with a low velocity and a weak amplitude without specific guideline. Its aim is to simulate a real spinal manipulation.

6. Judging criteria

The groups evaluating the intervention are compared with the various control groups by assessing the persistence or modification of the various migraine diagnostic criteria, according to the ICHD-3 questionnaire (10). In addition, other assessment criteria, such as well-being or changes in various biopsychosocial factors, are taken into account. To this end, patients are assessed before and after treatment, with post-study follow-up.

Research methodology

A variety of sources were consulted for this review. Articles were collected from the PubMed, PEDro and Cochrane Library databases.

In order to refine the article search, the Mesh tool was used to reformulate our key terms, which enabled us to optimise and increase our sample of articles. A selection was then made using Rayyan software to improve readability and save time.

Search equation

The research equation is based on our research question and our PICO criteria, determined beforehand (Table 1).

We made the conscious choice not to include the comparator in our research equation, as it includes all the global and generic treatments offered for migraine. The research equation therefore focuses on the intervention, in this case manual therapy. This choice was also made with a view to not further restricting the sample of articles collected. The articles reviewed will be selected on the basis of comparators relevant to the systematic and critical review.

Finally, the outcome criterion focuses on the improvement in the condition of migraine sufferers:

- improvement in their daily lives
- reduction in attacks
- reduction in frequency
- reduction in co-morbidities, and so on.

Table 1: PICO criteria

	Search terms	MESH term	Synonyms
Population	Migraine sufferers	migraine disorder	<i>Migraine Headache</i> <i>Migraine</i> <i>Migraine disorders</i>
Intervention	Manual therapy	manual therapy	<i>Musculoskeletal Manipulations</i> <i>Manipulation Therapy Manipulative</i> <i>Therapies Manipulative Therapy</i> <i>Manual Therapies Physiotherapy</i> <i>Physiotherapies</i> <i>Physical Therapy Technique</i>
Judging criteria	x	x	x

The search equation obtained from the PubMed site is written as follows:

("Migraine Disorders" [MeSH Terms] OR " Migraine Headache "[MeSH Terms] OR " Migraine Headaches "[MeSH Terms] OR " Migraine ("Migraines" [MeSH Terms] OR "Migraines" [MeSH Terms]) AND ("Musculoskeletal Manipulations "[MeSH Terms] OR " Manipulation Therapy "[MeSH Terms] OR " Manipulative Therapies "[MeSH Terms] OR " Manipulative Therapy "[MeSH Terms] OR " Manipulation Therapies "[MeSH Terms] OR " Manual Therapies "[MeSH Terms] OR " Manual Therapy "[MeSH Terms] OR " Physiotherapy "[MeSH Terms] OR " Physiotherapies "[MeSH Terms] OR " Physical Therapy Technique "[MeSH Terms])

The Boolean operators "OR" are used to link the different synonyms encountered and "AND" to associate them in groups.

The specificity of the search equation is also enhanced by the use of thesauri [MeSH Terms] to define the location of terms used by the search equation.

For the other search engines, the use of keywords was preferred, except for Cochrane :

- PEDro: migraine disorder, manual therapy
- Cochrane Library: "Migraine Disorder* Migraine Headache Migraine* Musculoskeletal Manipulations* Manipulation Therapy* "Manipulative Therapies" "Manipulative Therapy" "Manipulation Therapies" "Manual Therapies" "Manual Therapy" Physiotherapy Physiotherapies "Physical Therapy Technique" "Physical Therapy Techniques"

Analysis

Selection of studies

Articles are selected using the search equation in the PubMed, Cochrane and PEDro databases. The search results are then exported and imported into Rayyan, a platform dedicated to article management.

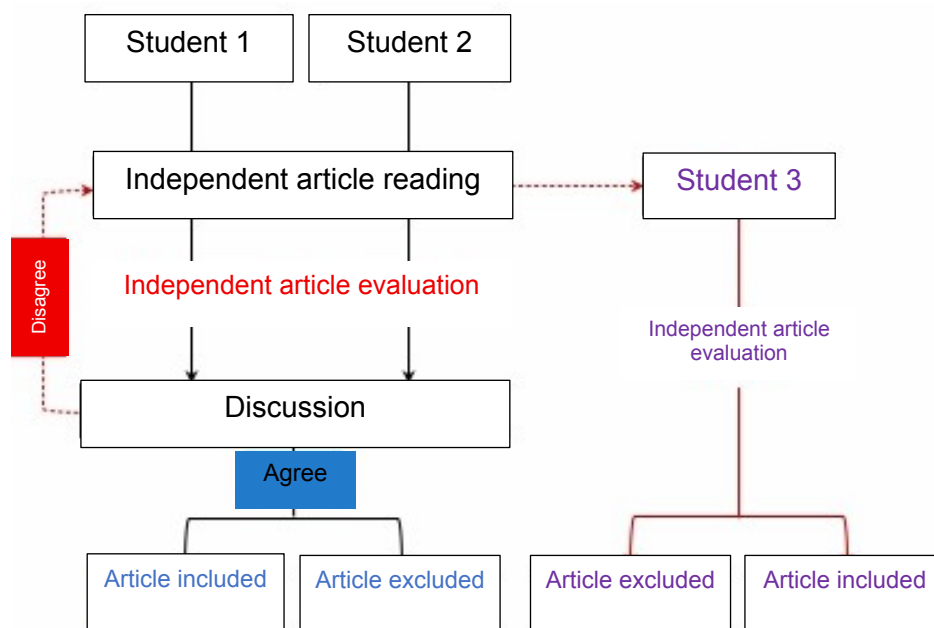
Once this stage has been completed, the articles are automatically sorted by the Rayyan platform's artificial intelligence which uses algorithms to identify relevant articles and eliminate obvious duplicates.

A second sort is carried out manually, checking the similarity of the items, in order to refine the selection.

A first selection is made by reading the titles and abstracts of each article, by all the students independently and without knowing the evaluation of the other members of the group. A first pooling is made via a majority voting system, available on the Rayyan platform. Each article selected beforehand is then read in full and evaluated independently using the SIGN RCT score grid by two students.

A second pooling is done. By sharing the results of the evaluations, it is decided whether or not the article is definitively selected. Inclusion of the article is established by a unanimous vote. In the event of disagreement, a third party is involved to help make the decision. (Figure 1). This rigorous process guarantees the objective selection of the most relevant and high-quality articles to meet the research objective.

Figure 1: Flow for inclusion or exclusion



Data extraction

The following information was extracted from the articles selected:

- the aim of the study
- the population studied and its demographics
- the method of randomisation
- the control group

- the intervention group enabling the effectiveness of manual therapy to be studied
- the measurement of the results
- summarised conclusions and discussions.

Assessment of the methodological quality of the selected studies

The methodological quality of a study corresponds to its external and internal validity and the interpretation of its results. For the articles selected, their level of evidence was assessed using the SIGN score grid, adapted for RCT.

The methodological quality of the articles was assessed independently by two students. The results were then pooled. This enables the quality of the article to be determined unanimously. In the event of disagreement, a third party is involved to help reach a decision.

Method for summarising results

The methodological quality of each article is reported in a summary table, using the SIGN-RCT grid scores. An extraction of data from the selected articles will be presented in the form of a complete table with 10 categories grouping together:

- date of publication
- title of the article
- authors of the article
- objectives of the study
- characteristics of the groups studied
- method of randomisation
- characteristics of the control group (number of participants and reference treatment)
- characteristics of the intervention group (number of participants and intervention treatment)
- measurement of the results; and
- summary of the conclusion and discussion.

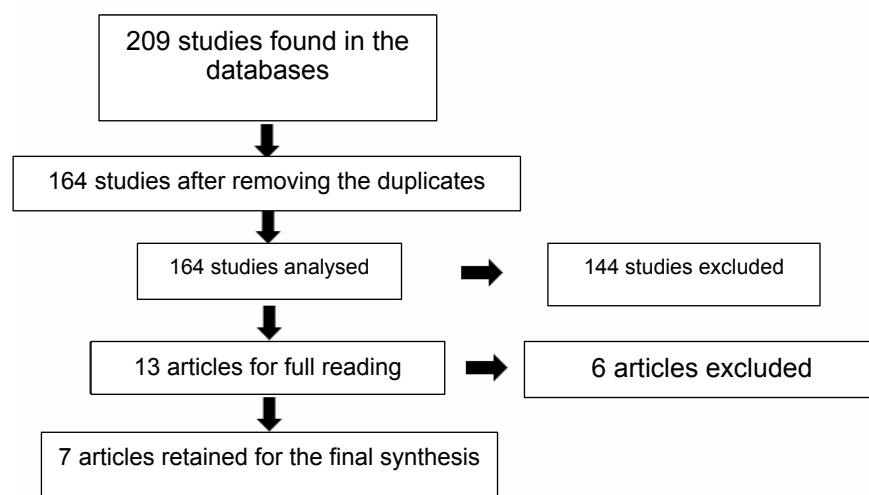
Each result found will be detailed in a separate paragraph. And, for the sake of clarity, a summary table will be proposed to categorise the results according to the different agents used in manual therapy (Table 4).

Results

Selection of articles

After several stages of sorting and excluding articles, seven articles were retained for data extraction and analysis.

Figure 2: Flow for selection



Initially, 209 articles were identified from the PubMed, Cochrane and PEDro databases. After removing duplicates via the Rayyan platform, the 164 articles were reviewed by each member of the group. After reading all the abstracts and titles, 13 articles were selected on the basis of inclusion and exclusion criteria for full reading. Six articles were excluded on the grounds of poor methodological quality, leaving seven articles definitively retained for the final synthesis.

Table 2: Summary of SIGN criteria for the 7 articles included in the review

Article No:	1	2	3	4	5	6	7
Clearly stated and appropriate research question	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random assignment	No	Yes	Yes	Yes	Yes	Yes	Yes
Appropriate blinding method	Yes	Yes	Yes	Yes	Yes	Don't know	Yes
Blinding maintained for investigators	No	Yes	No	Yes	Don't know	Yes	No
Control and treatment groups similar at start of study	Yes	No	Yes	Yes	Yes	Yes	Yes
Only difference between groups is the treatment	Yes	Yes	No, but journal kept	No, but journal kept	No, but journal kept	Yes	Yes
Outcome criteria are standard and measured validly and reliably	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subjects analyzed in their assigned group	Yes	Yes	Yes	Yes	Yes	Yes	Yes
If study conducted at multiple sites, results are comparable	N/A	N/A	N/A	N/A	Don't know	Don't know	Not applicable
Bias	Small sample size, randomization by coin flip, not blinded	No placebo (Sham), evaluation of only one chiro technique	No blinding for therapists	Small sample size, possible inter-professional difference between groups	Information bias, over too short a time	Self-reported data and study not long enough	More men than women, no therapist blinding

Analysis of articles

The results of the seven studies used in this report are set out in the following table:

Table 3: Summary of findings

n	Year	Title	Design	Author	Objective of the Study	Group Characteristics	Randomisation Method	Control Group	Intervention Group	Outcome Measures	Conclusion / Discussion
1	1998	Migraine headaches are reduced by massage therapy	RCT	Hernandez-Reif Maria et al.	Evaluate if massage therapy can reduce migraines in frequency, intensity, and anxiety	N = 26 Migraine patients aged 24 to 65 years (M = 39.9 years) Caucasians > Hispanics > African-Americans Migraine diagnosis (IHS)/ chronic headache	Coin flip or face draw with a wait-list controlled group	N = 14 No massage for 5 consecutive weeks Medication intake for classical migraine management	N = 12 30 min massage 2x/week for 5 consecutive weeks Semi-circular on skull, palpation at skull base, sub-occipital mobilization, sub-occipital pressure (routine 3x10min)	Before and after interventions, 1st and last day of treatment over the 5 treatment weeks: VAS / VITAS (pain scale 0 to 10) Headache log Symptom checklist-90-R Sleep diary Urine	Results: interest in massage therapy in migraine management (intensity, frequency reduced, improved sleep, increased serotonin) Discussion: not blinded at all, subjective parameters in outcome assessment
2	2000	A Randomized Controlled Trial of Chiropractic Spinal Manipulative Therapy for Migraine	RCT	Tuchin et al.	Observe the effects of chiropractic spinal manipulation in migraine treatment	N = 123 Migraine patients aged 18 to 70 years N = 40 CSMT N = 83 control group	Randomized using a base of 2: Based on first letter of last name supervised by impartial person Blinded patient and therapist	N = 40 (M = 37.8 years) Treatment with low-frequency current electrode placed on skull	N = 83 2 months of diversified C/S HVLA CSMT (maximum 16 treatments)	Migraine journal: - Frequency, intensity, duration - Associated signs, duration - VAS	Results: Significant effect on intensity, frequency, disability, and medication use in the CSMT group → moderate effect Discussion: control group of poor quality, small sample Bias: likely due to physical condition linked to being in the CSMT group Limit: other chiropractic techniques do not yield the same effect
3	2017	Chiropractic spinal manipulative therapy for migraine: a three-armed, single-blinded, placebo, randomized controlled trial	RCT	Aleksander Chaibi et al.	Evaluate the efficacy of chiropractic spinal manipulations in migraine patients VS sham (placebo)	N = 104 Migraine patients aged 18 to 70 years F > H N = 35 CSMT N = 35 Sham N = 34 Control At least one crisis per month With tension-type headache allowed but not other primary headaches (other than migraine) Diag per ICHD-II	Each person was randomly assigned then distributed into 3 groups	Control Group N = 34 No manual intervention Continue usual pharmacological treatment Placebo N = 35 Sham manipulation – 12 sessions Light and non-specific contact Low amplitude No spinal thrust No LOD or pre-load No post-adjustment tension	CSMT group N = 35 Gonstead Method Specific contact, high velocity low amplitude Short thrust on spinal lever Without post-adjustment tension	Monthly migraine calendar: - number of migraines, duration, intensity	Results: significant reduction in migraine duration and intensity and medication in both groups (placebo and CSMT) → but from D1 effect is placebo Discussion: investigators cannot be blinded to manipulation (unlike pharmacological treatment)
5	2019	The Impact of Soft Tissue Techniques in the Management of Migraine/ Headache: A Controlled Trial	RCT	Tahere Rezaei et al.	Researching the effectiveness of trigger points VS placebo	N = 40 Migratory patients from 25 to 55 Diagnosis of migraine Triggers that reproduce pain	Note by exporting statistics with an Excel table Random selection and training of comparable groups	N = 20 Massage: gentle and superficial No NSAIDs, intake, or muscle relaxants allowed — But use of acetaminophen permitted.	N = 20 Trigger point treatment, 3 sessions Post-isometric relaxation Applied to the trapezius, suboccipital muscles, and sternocleidomastoid (SCM)	Keeping a migraine diary Participants recorded the onset and characteristics of migraines for 2 weeks (baseline evaluation) Then continued at a slower pace for 2 more weeks New migraine diary entries included: Frequency, intensity, and duration of headaches Medication use Disability related to headaches	Results: Trigger point techniques are effective in reducing certain aspects of migraine in migraine patients. Based on the Kemps Questionnaire completed by patients. Not applicable to all migraine sufferers. No comparisons made with other treatments.
6	2021	The Impact of Myofascial Release and Stretching Techniques on the Clinical Outcomes of Migraine: A Randomized Controlled Trial*	RCT	Rezaeie et al.	Effect of trigger point therapy and stretching on the cervical and head region.	N = 45 migraine patients aged 15 to 65 years Diagnosis: Migraine (according to standard diagnostic criteria)	Here there is randomization; however, the method of randomization is not clearly described."	"N = 20 Soft and superficial massage"	N = 20 Trigger point therapy, 3 sessions Post-isometric relaxation technique Applied to the trapezius, suboccipital muscles, and sternocleidomastoid (SCM)	Pain intensity, Neck Disability Index (NDI), and cervical range of motion (CROM) Evaluated before treatment, immediately after, and one month later	Results: Myofascial release is effective in patients with migraine, helping reduce certain aspects of the condition. Discussion: Study duration was not long enough Data was self-reported

n	Year	Title	Design	Author	Objective of the Study	Group Characteristics	Randomisation Method	Control Group	Intervention Group	Outcome Measures	Conclusion / Discussion
4	2017	Adverse events in a chiropractic spinal manipulative therapy single-blinded, placebo, randomized controlled trial for migraine sufferers.	RCT	Aleksan Chiaibi et al	Identify all the adverse effects (adverse events) of chiropractic spinal manipulative therapy (CSMT) in randomized controlled trials (RCTs).	Total N = 70 Migraine patients aged 15 to 70 years Study Groups: N = 35 – Chiropractic Spinal Manipulative Therapy (CSMT) group N = 35 – Placebo group n = 3rd control group (not clearly detailed — possibly a typo or missing info) Inclusion Criteria: Diagnosed according to ICHD-II (International Classification of Headache Disorders, 2nd edition) At least one migraine attack per month Tension-type headache allowed No other primary headaches (other than migraine) allowed	Participants were randomly drawn, temporarily left the room, and were then assigned to one of the three study groups by an external agent, ensuring blinding.	Placebo Group (N = 35) Intervention: Sham (simulated) spinal manipulation Session Duration: 12 to 15 minutes Technique: broad, non-specific contact Low amplitude and low velocity No thrust (Low-Gain Device, LGD) used for therapeutic effect No "power-up" techniques applied	CSMT Group (N = 35) Gonstead Method specific contact, high velocity and low amplitude short lever adjustment without recoil after the adjustment	Adverse Events (AEs) Recorded by the investigator before each session (No AEs = noted as none) Several questions were asked: "Did you have any adverse events?" (Yes or No) If yes: "What type of adverse event did you experience?" "When did it start and when did it stop?" "Was it considered mild, moderate, or severe?"	Results: - Reduction in the number of migraine days, with the effect maintained at 3, 6, and 12 months (unlike in the control group). - CSMT significantly more effective than placebo. - Some patients reported reduced tension, better sleep, and less fatigue. - Adverse events were mild and temporary; no serious adverse events were reported. Discussion: - Sample size too small to detect rare or severe adverse events. - Potential differences between inter-professional interventions (which could inherently cause differences in reported AEs).
7	2021	Effectiveness of a manual therapy protocol based on articular techniques in migraine patients. A randomized controlled trial	RCT	Elena Munoz-Gomez et al.	Evaluate the effectiveness of a manual therapy protocol based on articular techniques on pain intensity, episode frequency, migraine, and symptoms	N = 50 Migraine patients aged 18 to 50 years N = 25 intervention group N = 25 control group	Impartial statistician prepared envelopes with group allocation Doctors/physiotherapists were blinded until treatment time	N = 25 Hands-on placebo intervention	N = 25 Articular manipulation C0-C1-C2, mobilization of (C0-C1), mobilization of (C2-C7) in dorsal decubitus, mobilization of (C2-C7) in ventral decubitus, articular manipulation of C7-T1, articular manipulation of (T2-T6), and global SI joint manipulation	MIDAS questionnaire for migraine-related disability with intensity and frequency of pain Short Form-36 Health Survey (SF-36) for assessing physical, mental, and global quality of life Medication usage journal Patient Global Impression of Change (PGIC) scale to assess patients' perception of treatment changes	Results: Application of a manual therapy protocol based on articular techniques (notably cervical) helps reduce multiple migraine parameters like intensity, medication use, and frequency, while improving quality of life in migraine patients (First study evaluating manual manipulations on migraine patients' quality of life) Discussion: More women than men in the sample & multiple chiropractic techniques used in the intervention → results can't be attributed to a single technique

* CSMT = Chiropractic Spinal Manipulative Therapy

** AE = Adverse Events

*** Recoil = parameter of a chiropractic manipulation where the practitioner maintains contact after executing the thrust (low amplitude and high velocity impulse)

In the course of this systematic and critical review of the literature, the following results were obtained:

Adjustments and mobilisations

Gonstead

Gonstead chiropractic joint manipulation significantly reduces the number of migraine days 4, with an effect that lasts for 3, 6 and 12 months. A reduction in the duration, intensity and amount of medication taken was observed when this method was used. (3) However, the results do not show any significant difference from the placebo control group.

HVLA (High Velocity and Low Amplitude)

HVLA chiropractic joint manipulation could reduce the intensity (2, 3) and frequency (2) of migraine attacks, as well as reducing the need to take medication. (2, 3) HVLA chiropractic joint manipulation could reduce the duration of migraine attacks. (3, 4) HVLA chiropractic joint manipulation may also improve the patient's quality of life. (2)

LVHA (Low Velocity and High Amplitude)

Mid-cervical mobilisation and upper cervical and cervicothoracic manipulation are thought to reduce the intensity and frequency of painful episodes and the disability caused by migraines. (7) This would also improve the patient's physical and overall quality of life. (7)

Work on soft tissue

Stretching

Muscular techniques using muscle stretching in combination with other tissue techniques (active trigger points, stretching) reduce painful tension and the pain threshold of the trigger points of the sternocleidomastoid, upper trapezius and subcutaneous muscles as well as sub-occipitals. (5, 6) In this way, muscular techniques using trigger points, active trigger points and muscle stretching can also reduce migraine attacks and the daily impact of these attacks. (5)

Massage

Massage of the sub-occipital and cervical muscles is thought to reduce the intensity and frequency of migraine attacks. (1) Massage also improves sleep and increases the amount of serotonin produced. (1)

Trigger points therapy

Muscular trigger point techniques combined with other tissue techniques (active trigger points, stretching) are thought to reduce painful tension and the pain threshold of the trigger points of the *sternocleidomastoid*, *upper trapezius* and *suboccipital muscles*. (5) In this way, muscular techniques can reduce migraine attacks and their daily impact. (5)

Active Trigger Points

Muscular techniques using Active Trigger in combination with other tissue techniques (trigger point, m stretching) reduce painful tension and the pain threshold of the trigger points of the *sternocleidomastoid*, *upper trapezius* and *suboccipital muscles*. (5) In this way, the Active Trigger technique can reduce migraine attacks and their daily impact. (5)

The results given above summarised in the table below.

Table 4: Double-entry table of manual therapy according to different variables

	Adjustment	Tissue work
Impact on medication intake	Reduction (2*, 7)	Discount (5*)
Impact on the VAS (visual analogue scale) for pain	Decrease (2*, 3*, 7)	Decrease (1, 5*,6)
Frequency	Decrease (2*, 3*, 4*, 7*)	Decrease (1, 5*)
Impact on daily life	Improving everyday life (2*, 7)	Improved sleep (1)

* significant

Discussion

The aim of this systematic and critical review of the literature was to evaluate the role of manual therapy in the treatment of migraine sufferers.

Chiropractic spinal manipulation techniques (2) are shown to be effective in the treatment of migraines and their co-morbidities (tertiary prevention). In addition, treatment is also effective through the use of various muscular techniques such as trigger points and the active trigger point on the cervical muscles for muscle tension and analgesic effect. Joint manipulations such as the Gonstead technique on the cervical spine have been shown to be effective in treating migraines. Taken together, these tools can improve various aspects of migraine, such as the intensity, frequency and duration of attacks.

Chiropractic treatment of migraine patients may also reduce the need for analgesic medication.

The results of this review of the literature are in agreement with the article by Chabi et al, 2011, and indicated that manual therapy, more specifically chiropractic manipulation of the cervical region, is at least as effective as the usual drug treatment, although with a reservation due to the quality of the randomised controlled trials included in the review. (11) The same findings and reservations were raised in the systematic review and meta-analysis by Rist et al, 2019, suggesting that the evidence base for spinal manipulation should be further strengthened by conducting randomised clinical trials of high methodological quality, as their results are only preliminary. (18)

These results are also similar to the review by Varangot-Reille et al, 2022, although there is a difference in the effectiveness of manual therapy on the frequency, pain intensity and quality of life of patients suffering from migraine attacks. According to these authors the level of evidence concerning these points remains of low quality. (12)

This literature review was carried out systematically and critically, using a method that ensured the objective inclusion of the articles selected. The databases used (PEDro, Cochrane and PubMed) enabled an exhaustive search for articles corresponding to the research question. In addition, the choice of a broad publication period made it possible to include relevant articles in this review.

The method used to select the articles involved filtering out those that were irrelevant or of low quality. In addition, each pre-selected article was analysed using a SIGN-RCT score grid to assess its level of evidence. Only articles of acceptable methodological quality were retained. This sorting method ensures a certain level of quality.

This systematic and critical review of the literature offers a more complete vision of manual therapy, including the different therapeutic modalities such as manipulations and soft tissue relaxation techniques. It thus offers a more realistic version of what is involved in treating a migraine patient in a chiropractic practice.

The biases present in our study are mainly related to the biases observed in the various studies included in our review. The studies were often conducted over too short a period of time, were not necessarily double-blind, or were based on self-reported data, leading to significant information bias. Given the limitations of the samples and the randomisation of the studies included, the results of this systematic and critical review of the literature cannot be extrapolated to the general migraine population. (1, 2)

Furthermore, migraines and tension or cervicogenic headaches may coexist and bias the results of the studies conducted. In fact, the current scientific literature indicates a certain

efficacy (mixed literature on the subject) of joint manipulation and muscular work in the management of tension or cervicogenic headaches. (18, 19, 20)

The conscious choice to include several modalities in the definition of manual therapy is a source of bias. In fact, the articles included presented several techniques themselves and it therefore becomes complex to attribute improvements in symptoms to a single technique. The question then arises: *is it the combination of all these different techniques that improves the patient?* And *is it imperative to use all these techniques, like a protocol, to improve the migraine sufferer's symptoms?* To answer these questions, we need to continue to explore the use of manual therapy in the treatment of migraine patients through randomised controlled trials.

The main methodological limitation of this study is that some articles relevant to this review were not accessible (unaffordable price, foreign language other than English and lack of internet access to articles). In addition, the classification of results could be reviewed to provide greater clarity and precision. In its current state, it is usable, but an update of the results would make this report more concise.

Despite growing public interest in the inclusion of manual therapy in a healthcare pathway that is increasingly free of medication, French healthcare institutions neither approve nor recommend this therapeutic approach, which can nevertheless be beneficial and useful for migraine sufferers. It might therefore be worth reconsidering the place of manual therapy in the management of migraine sufferers, particularly in the context of tertiary prevention, when the French recommendations issued by the *French National Authority for Health* (HAS) are next updated.

Conclusion

This systematic and critical review of the literature could help to reinforce current scientific opinion, and the results found tend to show that Manual therapy, including joint and muscle work, would appear to be effective in the treatment of migraine.

As described by some of the authors included in this review (Chiabi et al, 2017), the first-line treatment is medication. However, the numerous side effects presented by anti-migraine drugs make their use restrictive (Olesen et al., 2006, Diener et al., 2015, Schulte and May, 2015). Thus, the exploration of alternative voices is being studied in the scientific literature. To date, there is little literature dedicated to manual therapy. And even if manual therapy seems to be effective in the treatment of migraine (as mentioned in this review), we have very little literature on the potential side effects of manual therapy in the management of migraine patients. In fact, if the side effects of manual therapy are less, for similar efficacy, the option of manual therapy will be justified.

In order to enable changes to be made to the recommendations for good practice currently applied in France, it would seem fair and appropriate to carry out a randomised controlled trial studying all therapeutic modalities in the management of migraine patients, on a larger sample, but also other RCT studies including only one manual therapy modality, thus making it easier to compare the different approaches.

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Authors' note:

This systematic review was conducted using a rigorous methodology to ensure reliability, despite certain limitations, such as restricted access to some articles. While pharmacological treatments remain commonplace, the growing interest in alternative approaches such as manual therapy highlights the need for further investigation into their efficacy and potential side effects in the context of migraine management.

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References

1. Hernandez-reif, M., Dieter, J., Field, T., Swerdlow, B., & Diego, M. (1998). Migraine Headaches are Reduced by Massage Therapy. *International Journal of Neuroscience*, 96(12), 111. <https://doi.org/10.3109/00207459808986453>
2. Tuchin, P. J., Pollard, H., & Bonello, R. (2000). A randomized controlled trial of chiropractic spinal manipulative therapy for migraine. *Journal of Manipulative and Physiological Therapeutics*, 23(2), 9195.
3. Chaibi, A., Benth, J. Š., Tuchin, P. J., & Russell, M. B. (2017b). Chiropractic spinal manipulative therapy for migraine: A three-armed, single-blinded, placebo, randomized controlled trial. *European Journal of Neurology*, 24(1), 143153. <https://doi.org/10.1111/ene.13166>
4. Chaibi, A., Benth, J. Š., Tuchin, P. J., & Russell, M. B. (2017a). Adverse events in a chiropractic spinal manipulative therapy single-blinded, placebo, randomized controlled trial for migraineurs. *Musculoskeletal Science and Practice*, 29, 6671. <https://doi.org/10.1016/j.msksp.2017.03.003>
5. Rezaeian, T., Mosallanezhad, Z., Nourbakhsh, M. R., Ahmadi, M., & Nourozi, M. (2019). The Impact of Soft Tissue Techniques in the Management of Migraine Headache: A Randomized Controlled Trial. *Journal of Chiropractic Medicine*, 18(4), 243252. <https://doi.org/10.1016/j.jcm.2019.12.001>
6. Rezaeian, T., Ahmadi, M., Mosallanezhad, Z., & Nourbakhsh, M. (2021). The impact of myofascial release and stretching techniques on the clinical outcomes of migraine headache: A randomized controlled trial. *Journal of Research in Medical Sciences*, 26(1), 45. https://doi.org/10.4103/jrms.JRMS_745_18

7. Muñoz-Gómez, E., Inglés, M., Serra-Añó, P., & Espí-López, G. V. (2021). Effectiveness of a manual therapy protocol based on articulatory techniques in migraine patients. A randomized controlled trial. *Musculoskeletal Science and Practice*, 54, 102386. <https://doi.org/10.1016/j.msksp.2021.102386>
8. Migraine : Facteurs déclenchants et symptômes. (s. d.). Consulté 25 avril 2024, à l'adresse <https://www.ameli.fr/assure/sante/themes/migraine/symptomes-facteurs-declenchants-evolution>
9. Migraine · Inserm, La science pour la santé. (s. d.). Inserm. Consulté le 25 avril 2024, à l'adresse <https://www.inserm.fr/dossier/migraine/>
10. Headache Classification Committee of the International Headache Society (IHS) The International Classification of Headache Disorders, 3rd edition. (2018). *Cephalalgia*, 38(1), 1211. <https://doi.org/10.1177/0333102417738202>
11. Chaibi, A., Tuchin, P. J., & Russell, M. B. (2011). Manual therapies for migraine : A systematic review. *The Journal of Headache and Pain*, 12(2), 127133. <https://doi.org/10.1007/s10194-011-0296-6>
12. Varangot-Reille, C., Suso-Martí, L., Dubuis, V., Cuenca-Martínez, F., Blanco-Díaz, M., Salar-Andreu, C., Casaña, J., & Calatayud, J. (2022). Exercise and Manual Therapy for the Treatment of Primary Headache : An Umbrella and Mapping Review. *Physical Therapy*, 102(3), pzab308. <https://doi.org/10.1093/ptj/pzab308>
13. Ducros, A., de Gaalon, S., Roos, C., Donnet, A., Giraud, P., Guégan-Massardier, E., Lantéri-Minet, M., Lucas, C., Mawet, J., Moisset, X., Valade, D., & Demarquay, G. (2021). Revised guidelines of the French headache society for the diagnosis and management of migraine in adults. Part 2 : Pharmacological treatment. *Revue Neurologique*, 177(7), 734752. <https://doi.org/10.1016/j.neurol.2021.07.006>
14. Demarquay, G., Mawet, J., Guégan-Massardier, E., de Gaalon, S., Donnet, A., Giraud, P., Lantéri-Minet, M., Lucas, C., Moisset, X., Roos, C., Valade, D., & Ducros, A. (2021). Revised guidelines of the French headache society for the diagnosis and management of migraine in adults. Part 3 : Non-pharmacological treatment. *Revue Neurologique*, 177(7), 753759. <https://doi.org/10.1016/j.neurol.2021.07.009>
15. American Physical Therapy Association. (2001). *Guide to Physical Therapist Practice*. Second Edition. American Physical Therapy Association. *Physical Therapy*, 81(1), 9746.
16. Arrêté du 13 février 2018 relatif à la formation en chiropraxie (JORF no 0037 du 14 février 2018) NOR : SSAH1717550A, page 21.
17. Beier, D., Callesen, H. E., Carlsen, L. N., Birkefoss, K., Tómasdóttir, H., Würtzen, H., Christensen, H. W., Krøll, L. S., Jensen, M., Høst, C. V., & Hansen, J. M. (2022). Manual joint mobilisation techniques, supervised physical activity, psychological treatment, acupuncture and patient education in migraine treatment. A systematic review and meta-analysis. *Cephalalgia*, 42(1), 6372. <https://doi.org/10.1177/03331024211034489>
18. Pamela M Rist, Audrey Hernandez, Carolyn Bernstein, Matthew Kowalski, Kamila Osypiuk, Robert Vining, Cynthia R Long, Christine Goertz, Rhayun Song, Peter M Wayne. (2019) The impact of spinal manipulation on migraine pain and disability: A systematic review and meta-analysis. *Headache*. 59(4): 532-542. DOI 10.1111/head.13501.
19. Turkistani, A., Shah, A., Jose, A. M., Melo, J. P., Luenam, K., Ananias, P., Yaqub, S., & Mohammed, L. (2021). Effectiveness of Manual Therapy and Acupuncture in Tension-Type Headache : A Systematic Review. *Cureus*, 13(8), e17601. <https://doi.org/10.7759/cureus.17601>
20. Núñez-Cabaleiro, P., & Leirós-Rodríguez, R. (2022). Effectiveness of manual therapy in the treatment of cervicogenic headache : A systematic review. *Headache*, 62(3), 271283. <https://doi.org/10.1111/head.14278>
21. Cumplido-Trasmonte, C., Fernández-González, P., Alguacil-Diego, I. M., & Molina-Rueda, F. (2021). Manual therapy in adults with tension-type headache : A systematic review. *Neurologia*, 36(7), 537547. <https://doi.org/10.1016/j.nrleng.2017.12.005>

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