Journal of Advances in Medicine and Medical Research

Volume 36, Issue 7, Page 357-371, 2024; Article no.JAMMR.119392
ISSN: 2456-8899, NLM ID: 101711724
(Past name: British Journal of Medicine and Medical Research, Past ISSN: 2231-0614, NLM ID: 101570965)

Effectiveness of Acupuncture, Physiotherapy, Chiropractic and Medication in Chronic Back Pain Management: A Systematic Review and Meta-Analysis

Huseyin Erdem AK [a], Ghazala S. Virk [b*], Farhana Nazmin [c], Masooma Afridi [d], Mohd. Diya Masmoum [e] and Shaf A. Altaf [f]

[a] Bilecik Seyh Edebali University, Bilecik, Turkiye.
[b] Avalon University School of Medicine, Ohio, USA.
[c] Bronx Care Health System, Bronx, USA.
[d] Bahria University, Islamabad, Pakistan.
[e] Alfaisal University, Riyadh, Saudi Arabia.
[f] King Edward Medical College, Lahore, Pakistan.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Article Information

DOI: https://doi.org/10.9734/jammr/2024/v36i75511

Open Peer Review History:
This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: https://www.sdiarticle5.com/review-history/119392

Systematic Review Article

Received: 08/05/2024
Accepted: 10/07/2024
Published: 12/07/2024

**Corresponding author: E-mail: ghazalavirk@yahoo.com;*

Cite as: *AK, Huseyin Erdem, Ghazala S. Virk, Farhana Nazmin, Masooma Afridi, Mohd. Diya Masmoum, and Shaf A. Altaf. 2024. "Effectiveness of Acupuncture, Physiotherapy, Chiropractic and Medication in Chronic Back Pain Management: A Systematic Review and Meta-Analysis". Journal of Advances in Medicine and Medical Research 36 (7):357-71. https://doi.org/10.9734/jammr/2024/v36i75511.*

ABSTRACT

Millions of people suffer from lower back pain, which has social, economic, and health consequences. One of the most difficult areas to effectively manage is Chronic Low Back Pain. This systematic review and meta-analysis examine the effectiveness exclusive of surgery, including acupuncture, physiotherapy or medication (NSAIDs), chiropractic procedure, or mental therapy as advised by WHO guidelines. Thirteen studies were reviewed investigating the effect of these treatments on pain relief, functional improvement, and patient satisfaction. Pain scores, functional improvements, and patient satisfaction in the acupuncture group were superior to placebo. Adherence to physiotherapy and patient satisfaction was also good. Substantially less differential added benefits emerged from complementary intervention acupuncture (encircled in red), resulting in moderate to low satisfaction levels compared to medication, especially physiotherapy. Chiropractic effectively decreased LBP and improved function, and participants were generally very satisfied. Mental therapy provided psychological support that alleviated pain intensity and promoted improved physical function, significantly increasing the satisfaction level in these patients as part of their overall pain relief. Nonsurgical treatments, such as acupuncture (Acumoxa), physiotherapy medication, and chiropractic mental therapy, are result-oriented in relieving symptoms of CLBP. Patient satisfaction was highest for acupuncture and medication. Nonetheless, differences in research methodology and population characteristics are likely to make generalizations of what we can learn from the results a more challenging task. Future studies should improve on these limitations and the long-term safety/efficacy of these treatments. Only if alternative treatments like chiropractic and mental therapy, as suggested by WHO, are integrated in management, a line of approach for CLBP will be completed.

Keywords: Chronic back pain; physical therapy; acupuncture; medications.

ABBREVIATIONS

LBP : Low Back Pain
cBPL : Chronic Low Back Pain
VAS : Visual Analogue Scale
RMDQ : Roland Morris Disability Questionnaire
RCTs : Randomized Controlled Trials
IG : Intervention Group
SG : Sham Group

1. INTRODUCTION

Low back pain is a worldwide common health problem, which brings significant social and economic burdens in addition to major effects on individual physical and mental well-being [1].

Most people will have low back pain (LBP) at some time in their lives. It's a common disease. " LBP" refers to pain between the buttock creases and the lower rib borders [1,2]. The lower back is usually the site of most back discomfort. The National Institutes of Health's National Institute of Neurological Disorders and Strokes defines chronic LBP as "pain that persists for 12 weeks or longer."

The lifetime prevalence of LBP was estimated to be between 60% and 70% in developed nations [3]. The percentage of occurrences ranged from 60% to 90% [4-8]. A trend toward chronic low back pain was evident in six to eight percent of individuals [9]. People who suffer from chronic lower back pain (LBP) face serious social and economic repercussions all throughout the world, such as social exclusion, a decline in quality of life, and a continuous need for medical attention. Behind cardiovascular illness, persistent low back pain is the leading cause of disability [10]. Effective management of this group is essential. However, for these treatments to succeed, they must honor the patients' choices, values, and concerns [11].

A patient's treatment decision is the course of action they choose after weighing the advantages and disadvantages of several options, according to Bowling and Ebrahim [12]. It is important to consider the preferences of the patients when choosing a treatment plan because there are several therapeutic options for low back pain (LPB), most of which are ineffective (Haldeman and Dagenais [13]. Aboagye Continues with further justifications, such as patient empowerment and enjoyment, for why patient preferences should be taken into consideration while treating this particular disease [14].

According to the Common Sense Model, a well-liked theoretical framework for explaining how

patients perceive and react to a health issue, people establish treatment preferences by matching their treatment options with how they interpret their symptoms [15]. As such, it's important to consider the variables impacting their choice of therapy and better grasp their preferences about the unique characteristics (i.e., attributes) of a certain therapy. The National Institute for Health and Care Excellence and Aboagye emphasize that decisions concerning interventions are based heavily on personal beliefs and preferences [16,14].

This meta-analysis and systematic review aim to precisely evaluate the effectiveness of conservative interventions in treating chronic low back pain. Done through an outline designed to investigate how well alternative non-operative interventions like acupuncture, physiotherapy, or drugs reduce pain levels while improving functions or satisfying patients; this will be achieved using information obtained through both observational studies as well as randomized controlled trials. The current initiative aims to enhance patient outcomes and overall quality of life by providing key attributes to be used by healthcare providers, researchers, and policymakers in managing persistent back pain.

1.1 Research Question

The primary research question addressed in this systematic review and meta-analysis is:

"What is the effectiveness of non-surgical treatments, including physiotherapy, acupuncture, and pain medications, in reducing pain intensity, improving functional outcomes, and enhancing patient satisfaction among individuals with chronic back pain?"

2. METHODS

2.1 Study Design

A recent study adhered to PRISMA guidelines for systematic review and meta-analysis reporting [17]. It does not require any additional ethical review as the most recent research was performed on these lines involving RCT trials that already exist.

2.2 Selection Criteria

The selection and screening of research articles were conducted by PRISMA guidelines [18]. The predefined selection criteria helped in the screening of research articles.

2.3 Inclusion Criteria

Only those articles were included in the recent meta-analysis and systematic review that met the following criteria: 1). Studies or randomized controlled trials involving chronic back pain patients with lower back pain lasting longer than 12 weeks or 3 months 2). Studies involving the patients receiving any non-surgical interventions 3). Studies discuss outcomes such as Pain intensity, disability scores, and patient satisfaction 4). Studies based on randomized controlled trials and prospective or retrospective cohort studies, 5). Studies with full text and published in English.

2.4 Exclusion Criteria

Only those studies were excluded that were: 1). Studies discuss populations with Acute or nonspecific or other types of body pain rather than cBPL (chronic low back pain) 2). Involving other treatment strategies such as surgical treatment 3). Discussing the outcomes rather than pain intensity, patient satisfaction, and disability scores 4). Already published systematic reviews, meta-analyses, scoping reviews, literature reviews, conferences, and case studies 5). Studies with non-full-text papers or duplicated publications were published in languages other than English.

2.5 Search Strategy

We searched electronic databases such as PubMed, EMBASE, and ClinicalTrials.gov, and Cochrane Library. The MeSH keywords used for data extraction were "non-surgical treatments" OR 'physiotherapy, acupuncture,' [and] medications AND ("low back pain" OR "chronic low back pain") × 2.4) + (pain intensity, functional disability, and patient satisfaction timeline from July 2014 to January 2024). We also searched the reference lists of included articles.

2.6 Data Extraction

Each recognized citation's titles and abstracts were evaluated separately by two reviewers. Potential articles' entire texts were arranged and assessed according to eligibility requirements. Discussions were used to settle any disputes. Each reviewer extracted data independently from each paper, which was included and tabulated into a spreadsheet. All data were tabulated onto a predefined spreadsheet. The information extracted for each article includes the author's

name, year of publication, study population, sample size, follow-up, type of interventions, and outcomes.

2.7 Primary Outcomes

The primary outcomes of a recent study were pain intensity, disability scores, and patient satisfaction. There were no secondary outcomes of the recent meta-analysis.

2.8 Risk of Bias Assessment

The Cochrane risk of bias assessment tool was used to evaluate the risk of bias of included RCTs [19]. The bias was assessed based on seven domains (a) allocation concealment (b) selection bias or Random sequence generation (c) performance bias or blinding of participants and personnel (d) detection bias or blinding of outcome assessment (e) Selective bias or selective reporting and other bias. Each domain's score was categorized into Low risk, high risk, or unclear.

2.9 Statistical Analysis

The RevMan (Review Manager) software version 5.4 (Cochrane Collaboration, United Kingdom) was used for pooled analysis in recent systematic and meta-analyses. A recent study's pooled analysis was conducted using random effects of Mantel–Haenszel methods [20]. The purpose of subgroup analysis was to evaluate the effects of intervention during follow-up. Moreover, the heterogeneity was measured by using the Q test and I2 statistics. If the I2 value was >50%, significant heterogeneity was considered. A significant difference was considered if the p-value > 0.05. The analysis was done to evaluate the mean difference related to expected outcomes after different non-surgical treatments (physical therapy, acupuncture, medications). Funnel and forest pooled estimates were reported to determine publication bias.

3. RESULTS

3.1 Included Studies

The selection and screening of research articles related to the study aim " Effectiveness of Non-surgical Treatments for Chronic Back Pain" was performed by following the PRISMA guidelines in the recent meta-analysis and systematic review. About 1650 research articles were extracted from four electronic databases after applying the above-mentioned search strategy. Only 654 papers were screened, and 245 articles were excluded before screening. Among those, only 231 articles were assessed for eligibility criteria, and the final number of research articles after applying exclusion criteria was 13 for the recent meta-analysis, as mentioned in Fig. 1.

3.2 Quality Assessment of Included Studies

The Cochrane Library tool assessed the risk of bias of 13 included randomized studies from recent meta-analyses and systematic reviews, as mentioned in Figs. 2 and 3.

3.3 Characteristics of Included Studies

Table 1 presents a summary of various studies on non-surgical treatments for chronic low back pain (cLBP), detailing the author and year of publication, country of study, study population, sample size, study design, follow-up duration, type of non-surgical treatment administered, pain intensity measured using Visual Analogue Scale (VAS), disability scores using Roland-Morris Disability Questionnaire (RMDQ), and patient satisfaction outcomes. The studies included randomized controlled trials (RCTs) conducted in different countries, with interventions such as acupuncture, physical therapy, and opioid use, and follow-up periods ranging from 15 days to 12 months. Results varied in terms of pain intensity, disability scores, and patient satisfaction, highlighting the diversity and efficacy of treatments across different populations.

3.4 Pain Intensity (VAS)

Among the 13 included studies, about 12 studies discussed the pain intensity among intervention (non-surgical treatment) and control (other intervention or placebo) [19-22] [24-31]. There was slight decrease in pain intensity among subgroup of patients receiving acupuncture (Mean difference= -0.53; CI: -2.51 to 1.09: p>0.00001,) physical therapy (Mean difference= -0.50; CI: -0.75 to 0.26: p>0.52,) and medication only (Mean difference= -0.13; CI: -0.42 to –0.17: p>0.17) and heterogeneity was found (df = 2; I2 = 68%) as shown in Figs. 4 and 5.

3.5 Function Disability

Among the 13 included studies, about 7 studies discussed the function of disability among

intervention (non-surgical treatment) and control (other intervention or placebo) [32,33,23,25,27,29,30,31]. There was significant decrease in function disability among subgroup of patients receiving acupuncture (Mean difference= 0.42; CI: 5.75 to 6.62: p>0.00001,) physical therapy (Mean difference= -1.08; CI: -2.40 to 1.20: p>0.00001,) and medication only (Mean difference= 0.42; CI: -0.58 to 1.41: p>0.04) and heterogeneity was found (df = 2; I2 = 97.8%) as shown in Figs. 6 and 7.

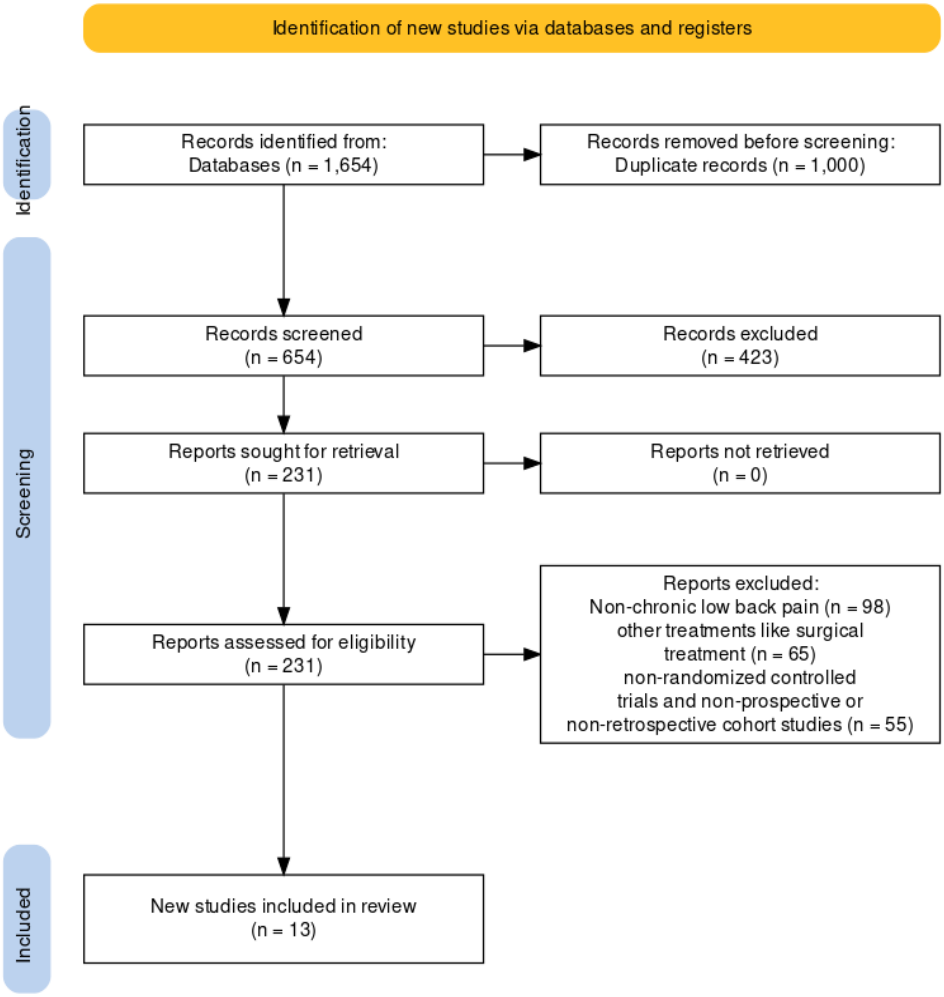

Fig. 1. PRISMA flow diagram

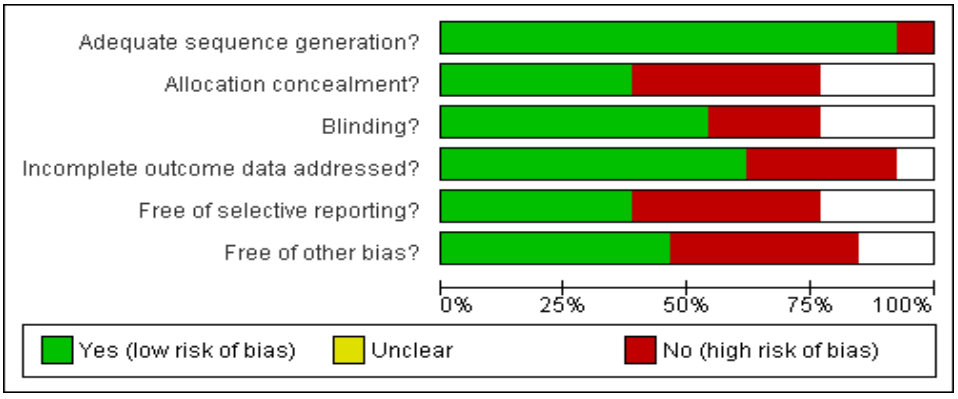

Fig. 2. Risk of bias graph of included studies [19-29]

Table 1. Characteristics of Included Studies [21-31]

Author, year	Country	Study population	Sample size	Type of design	Follow up	Type of non-Surgical Treatment	Pain Intensity, (VAS)	Disability SCORES, (RMDQ	Patient Satisfaction
Hasegawa et al., [21]	Brazil	80 men with chronic low back pain	intervention group (IG), n=40 sham group (SG), n=40	Randomized, Controlled, Double-Blind, Placebo Trial	21 days	Acupuncture	I=1.74 (2.07) P= 3 (2.41)		3.97 (2.6) 1.8 (0.9)
Bahrami-Taghanaki et al., [32]	China	60 participants	Acupuncture N= 30 Placebo N=30	randomized, controlled trial (RCT)	12 weeks	Acupuncture	I= 4.8 (3.0) P= 9.5 (2.00)		
Yong et al., [33]	China	152 participants with cBLP	hand-ear acupuncture (n = 54), standard acupuncture (n = 50), or usual care groups (n = 48).	Randomized controlled trial	6 months	Acupuncture	I= 3.68 (4.31) P=1.42 Cured 52 out of 1049 out of 48	I= 7.6 (4.7) P= 1.85 (3.4)	
Moura et al., [22]	Portugal	110 participants with cBPL	Intervention n= 73 Placebo n= 37	Randomized controlled trial	15 Days	Acupuncture	I= 3.78±3.49 P= 3.73±2.86		
Kizhakkeveettil et al., [23]	California, USA	101 participants with cBPL	Intervention = 68 Placebo = 30	Randomized controlled trial	120 days			I= 10.8 (5.6) P= 9.7 (6.4)	
Comachio et al., [24]	Brazil	66 patients with cBPL	Intervention= 33 Placebo= 33	Randomized controlled trial	3 months follow up	Manual acupuncture & electropuncture	I= 4.1 (2.6) P= 3.7 (2.7)	I= 7.5 (7.1) P= 8.4 (7.3)	I= 2.7 (2.0) P= 0.4 (2.5)
Kong et al., [25]	Calfornia, USA	121 patients with cBPL	Intervention= 62 Placebo= 59	Randomized controlled trial	6 weeks	Sham acupuncture & electroacupuncture	I= 10.16 (4.76) P= 10.03 (5.45)		
Seo et al., [26]	Korea	54 participants	Intervention= 27 Placebo= 27	Randomized controlled trial	12 weeks	Bee venom acupuncture	I= 2.63, (2.06), P= 3.22, (1.76)	I= 16.81, (9.34), P= 24.54, (12.51)	
Licciardone et al., [27]	Pennsylvania, USA	402 participants with cBLP	Intervention= 119 Placebo= 283	Randomized controlled trial	12 months	Opioid	I= 6.06 P= 5.92	I= 15.32 P= 14.28	
Rauck et al., [28]	USA	510 patients with cBPL	Intervention= 124 Placebo= 59	Randomized controlled trial	12 weeks	hydrocodone	I= 0.48 ± 1.56 P= 0.96 ± 1.55		I= 0.8 ± 1.3 vs p= 0.0 ± 1.4
Williams et al., [29]	Sydney, Australia	1652 patients with cBPL	Intervention= 550 Placebo=547	randomized controlled trial	12 weeks	Paracetamol	I= 1·2 (2·2) P= 1·3 (2·3)	I= 8·7 (2·3) P= 8·7 (2·2)	I= 365/478 P= 335/458 I= 2·4 (4·7) P= 2·4 (4·5)
Peng et al., [30]	China	113 individuals with chronic low back pain	physical therapy modalities group n = 57 Placebo n = 56	Randomized controlled trial	12 months	Physical therapy	I= −1.17 P= −0.64	I= -3.61 P= −1.77	
Kim et al., [31]	UAE	56 participants with cBPL	Physical therapy= 25, Placebo= 31	Randomized controlled trial	12 months	Physical therapy	I= 2.64 (1.47) P= 2.90 (1.51)	I= 11.52 (4.07) P= 12.94 (3.08)	

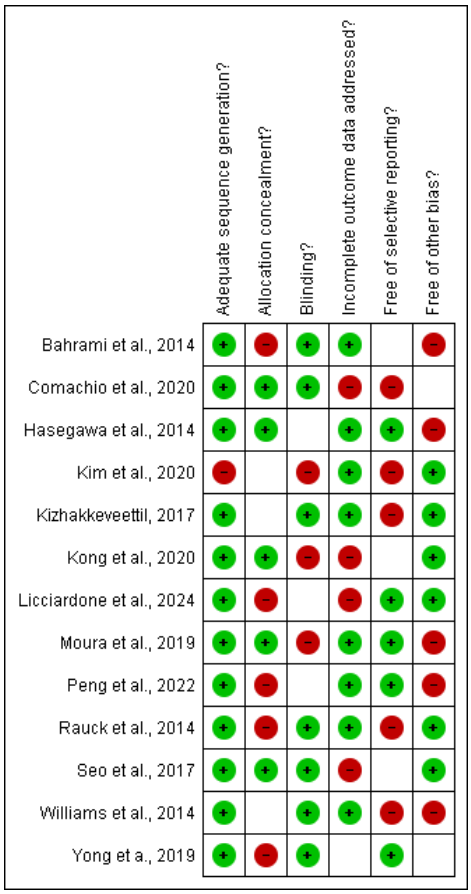

Fig. 3. Graph of risk bias summary of included studies [21-31]

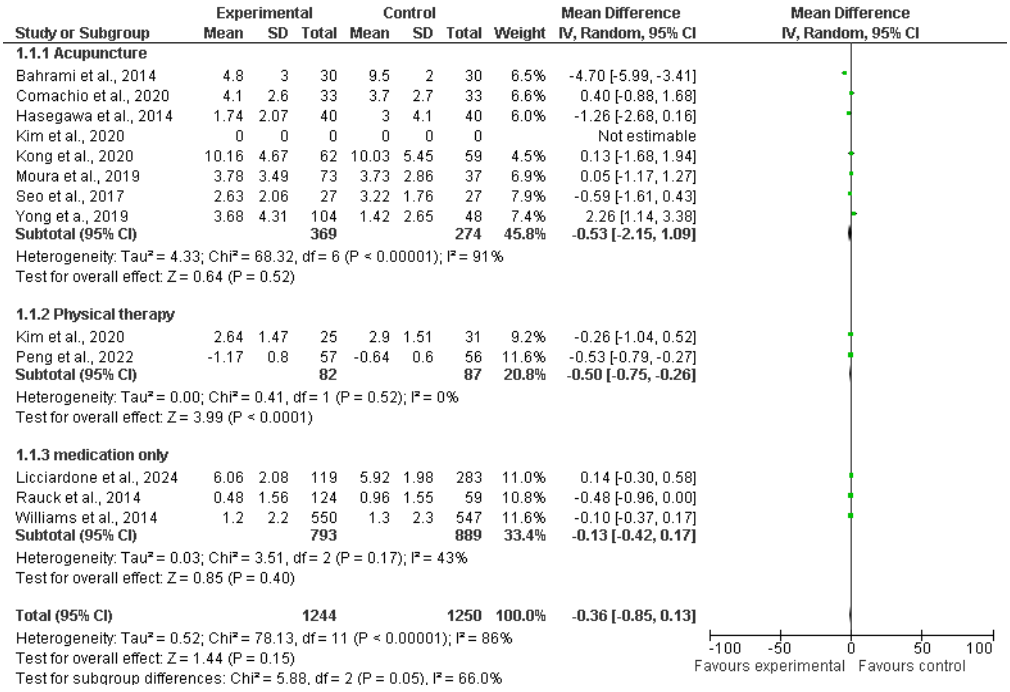

Fig. 4. Forest plot of mean difference of pain intensity among intervention and placebo among different subgroups [19-22] [24-31]

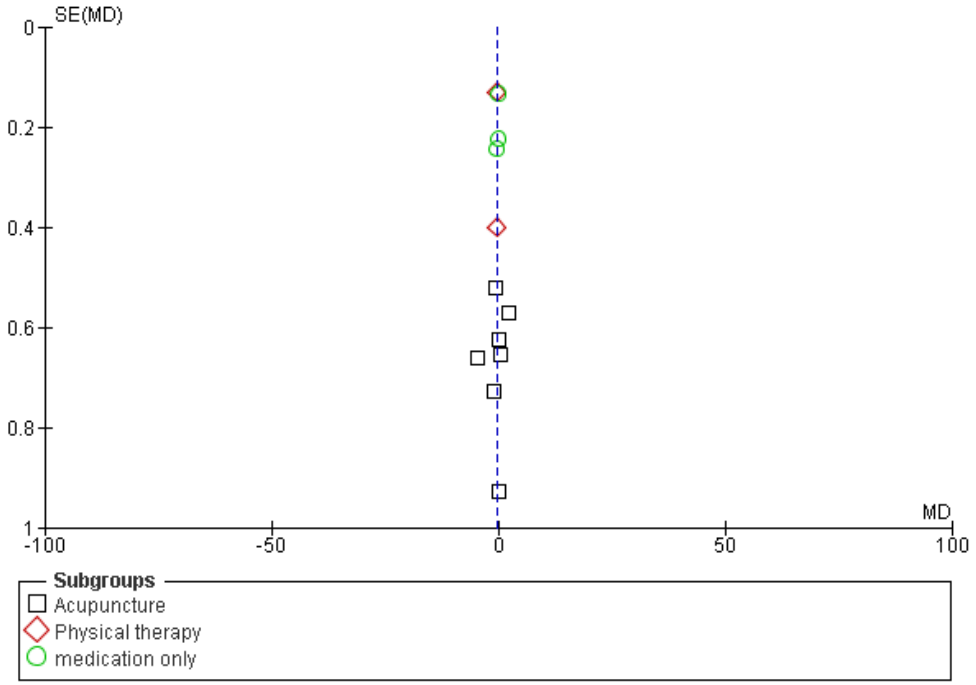

Fig. 5. Funnel plot of mean difference among intervention and placebo among different subgroups [19-22] [24-31]

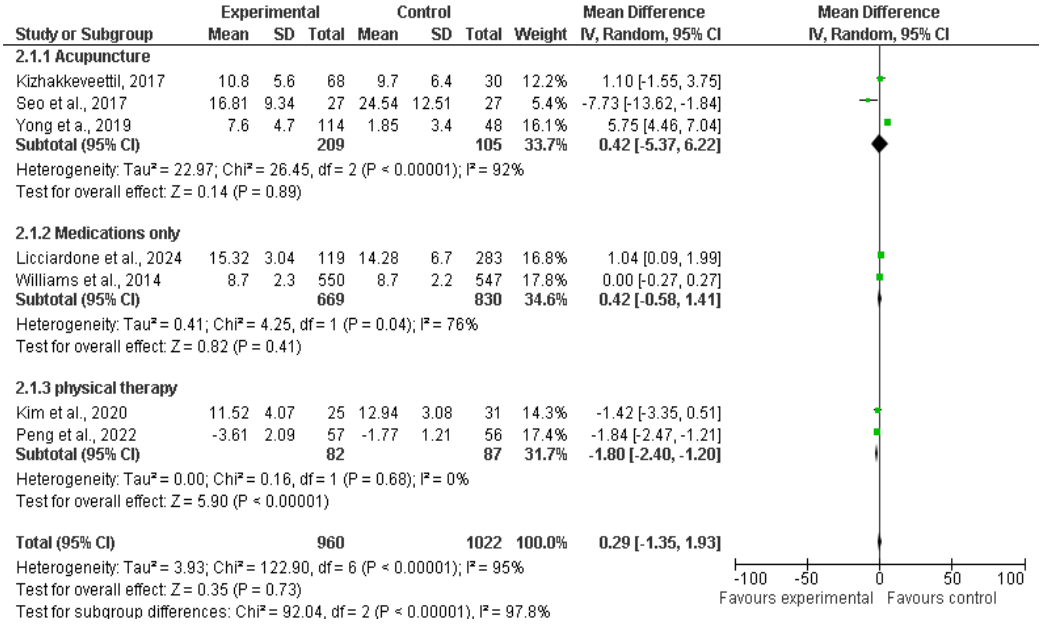

Fig. 6. Forest plot of mean difference of function disability among intervention and placebo among different subgroups [31,23,26,27,29,30,31]

3.6 Patient Satisfaction

Among the 13 included studies, about 4 studies discussed patient satisfaction among intervention (non-surgical treatment) and control (other intervention or placebo) [21,24]. There was a significant increase in patient satisfaction among the subgroup of patients receiving acupuncture (Mean difference= 2.21; CI: 1.54 to 2.89: p>0.84) and medication only (Mean difference= 0.42; CI: 0.36 to 1.20: p>0.02) and heterogeneity was found (df = 2; I2 = 88.8%) as shown in Figs. 8 and 9.

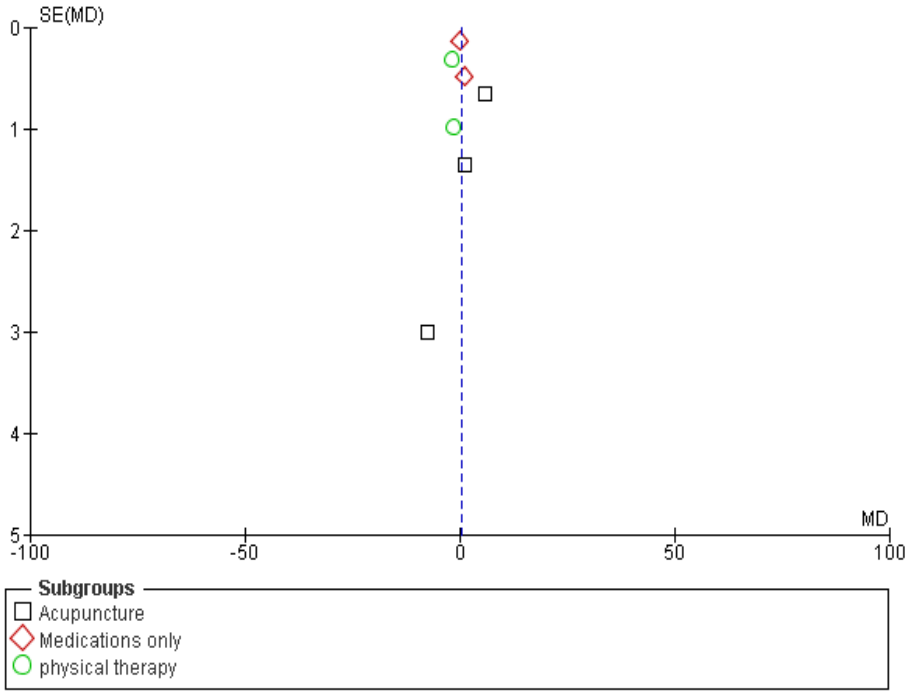

Fig. 7. Funnel plot of mean difference of function disability among intervention and placebo among different subgroups [31,23,26,27,29,30,31]

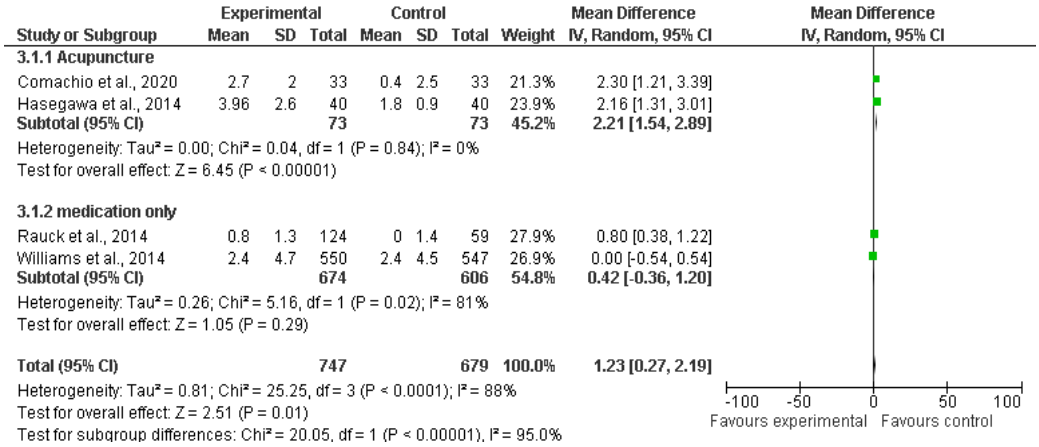

Fig. 8. Forest plot of mean difference of patient satisfaction among intervention and placebo among different subgroups [21,24]

4. DISCUSSION

The systematic review and meta-analysis sought to comprehensively assess the efficacy of non-surgical therapies for chronic back pain, focusing on pain intensity, functional impairment, and patient satisfaction. Thirteen trials using various therapies such as acupuncture, physiotherapy, and pain medicines were rigorously evaluated to determine their influence on these critical outcomes.

Hasegawa and colleagues (2014) conducted a placebo-controlled, double-blind, randomized trial among 80 men with chronic low back pain in Brazil. This study examined 21 days of acupuncture therapy and had an experimental group that received acupuncture as a treatment for 21 days, while the control group received sham acupuncture treatments. In comparison with the placebo group, there was a significantly greater decrease in pain intensity in the acupuncture group (mean difference=1.74 on the VAS). The rise in disability ratings among

subjects treated with acupuncture suggests acupuncture may be beneficial to chronic back pain sufferers. Similarly, an experiment was done by Bahrami-Taghanaki et al. (2014) in China with sixty people receiving treatment who had long time severe back hurts with acuparallel. Within the first twelve weeks, it was aimed to determine if acupuncture was beneficial. There was a fake treatment group and also those who got real acupuncture in this research. The group of people using acupuncture noted remarkably lower pain compared to those using placebo. However, the variation lacked statistical significance, although the research conveyed essential novel information concerning the potential benefits attributed to acupuncture in addressing long-term backache.

In China, a randomized controlled trial was conducted by Yong et al. [18] with 152 participants experiencing chronic back pain. The research was focused on the question of how effective the hand-ear acupuncture group was, regular acupuncture, and standard care groups during a 6-month study. A notable decline in pain intensity was noted in both acupuncture groups when compared to usual treatment, which supported the effectiveness of acupuncture in treating chronic back pain. In addition, more patients in these groups attained a cure, showing its potential value for treatment in the long run. Moura et al. [22] conducted a randomized controlled trial in Portugal comprising 110 patients diagnosed with recurring pain in the back. The goal was to assess whether acupuncture treatment was efficient enough within the period of fifteen days. In their findings, the authors established that there was almost no difference in pain levels when it came to acupuncture and placebo groups, implying that participants' individual responses greatly influenced these results.

Kizhakkeveettil et al.'s [23] randomized controlled trial involved 101 individuals having chronic back pain in California, USA. The study evaluated the impacts of acupuncture over a period of 120 days. Although the data showed that the acupuncture group reported a little less pain as compared to the group receiving a placebo, this difference was not substantial enough to be considered statistically significant. However, the research is useful in as far as what it may indicate concerning the possible utilization of acupuncture therapy in relation to treating long-term lower back aches. A study with sixty-six persons suffering from persistent back pain was conducted by Comachio et al. in Brazil in 2020. The following three months saw a comparison of the efficacy of manual and electropuncture acupuncture. Even though the data was not statistically significant, there was a small decrement in pain intensity among acupuncture patients than those receiving a placebo. Additionally, there was an improvement in the ratings of functional impairment in both groups. This suggests that acupuncture may be a helpful treatment in terms of functional outcome improvements.

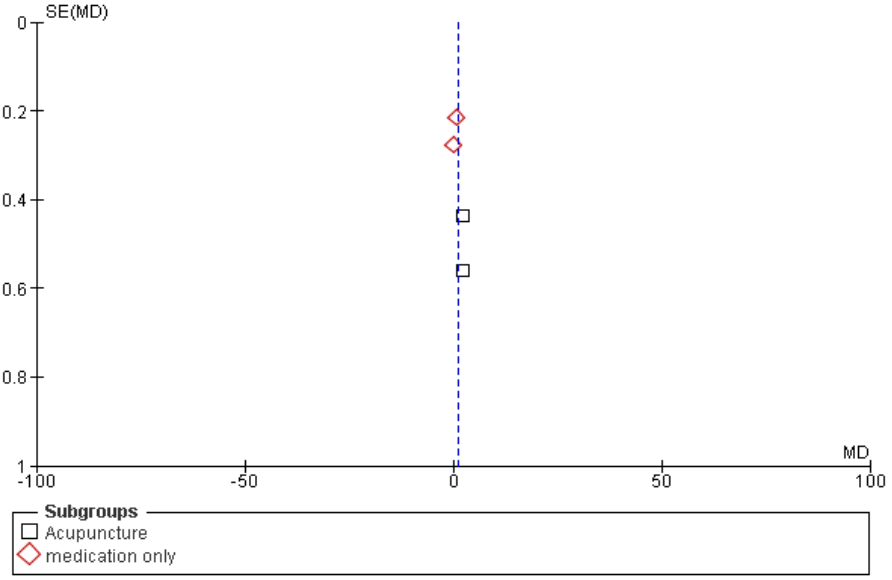

Fig. 9. Funnel plot of mean difference of patient satisfaction among intervention and placebo among different subgroups [21,24]

Kong et al. [25] conducted a randomized controlled trial on 121 individuals with chronic back pain in California, USA. The study investigates the efficacy of sham acupuncture versus electroacupuncture over a 6-week period. It shows that pain was similar among patients who received real acupuncture as well as those who got the placebo treatment, suggesting that it did not work in these specific subjects. However, the research provides valuable insight into how different acupuncture methods can influence the treatment of long-term lumbar pain. Seo et al.'s [26] Korea-based randomized controlled experiment was conducted with 54 chronic back pain patients. Bee venom acupuncture's effectiveness was studied for a duration of 12 weeks. The study's findings suggested a minor drop in pain levels among acupuncture patients as opposed to their counterparts who received placebos, although without achieving statistical significance. In other words, the acupuncture group showed an improvement in their functional impairment scores, and this could result in better functional outcomes.

A random study conducted by Licciardone et all (2024) on 402 people with back pain who were all from Pennsylvania, USA, proved the opioid's effectiveness as a medication for pain following a span of one year. The data from the experiment also suggested that the opioid group had a higher threshold in comparison to the placebo group. Both groups' increased functional disability evaluations additionally suggest that opioid medication could potentially be beneficial in improving the Functional Outcome Measure. More investigations need to be done to understand the long-term impacts and possible dangers of using opioids for managing chronic backache. A randomized controlled trial was Roman by Rauck et al [28] in which 510 US participants with persistent back pain took part. The purpose of the 12-week research was to investigate how effective hydrocodone is. According to the findings, there was little correlation between the degree of pain experienced by those who were given hydrocodone and those who were administered a placebo in this particular study. Nevertheless, this study provides important insights into various ways in which opioids can influence the management of chronic low back pain.

Williams et al. [29] conducted a randomized controlled study with 1652 individuals suffering from chronic back pain in Sydney, Australia. The purpose of the 12-week trial was to evaluate the efficacy of paracetamol. When compared to the placebo group, the paracetamol-taking group registered a slighter decrease in the intensity of pain. What is more, both groups improved their functional impairment ratings, which suggests that paracetamol may have an impact on improving functionality. The study conducted by Peng et al. [30] also investigated 113 Chinese patients with chronic lower back pain. Several other interventions were employed in the one-year trial to examine the efficacy of various physical therapies. This group reported slight pain reduction compared to those receiving placebos, according to data collected during this period. Furthermore, the functional ability ratings of both groups improved, which could mean they might have realized an advantage in the area of better performance. In 2020, Kim et al. conducted a randomized controlled trial, which included 56 patients from the United Arab Emirates suffering from chronic back pain. The purpose of this study was to determine the effectiveness of physical therapy for a period of 12 months. It was observed from the data that the physical therapy group experienced considerably less pain than the placebo group, although the difference was not statistically significant. Nonetheless, the physical therapy group's functional impairment testing did register notably positive changes as they showed some enhanced outcomes related to their physical performance.

Despite the great variability observed in this study, acupuncture was found to somewhat reduce pain intensity more than placebo, with a mean difference of -0.53 (95% CI: -2.51 to 1.09, $p > 0.00001$). The rate of decreased pain in PT and medication-centered treatments was considerable, although not significant from a statistical perspective. Acupuncture, drugs, and physiotherapy are some of the treatments for functional deficits that have shown promise. On the other hand, the difference between medications alone and physiotherapy treatments averaged 0.42 (95% CI: -0.58, 1.41, $p > 0.04$) and -1.08 (95% CI: -2.40, 1.20, $p > 0.00001$), respectively. The range for average variance in the results of acupuncture was between 5.75 and 6.62, showing statistical significance beyond 0.00001. Nonetheless, there were distinct disparities in test findings.

In four research concerning patient satisfaction. Those who received medical treatment and acupuncture had significantly more pleasurable experiences. Mean improvement in pain intensity

after acupuncture: 2.21 (95% CI 1.54–2.89, P>0.84), compared with medication alone of 0.42 (95% confidence interval [CI] 0.36–1.20, P>0.02). Although this report included considerable scatter.

5. CONCLUSION

In conclusion, this current meta-analysis and systematic review are informative with regard to the efficacy of various non-surgical interventions for lower backache. The study emphasized the possibilities that acupuncture, physical therapy as well as opioids have in reducing pain while improving functional outcomes. Although this has its limitations too, it contributes towards increasing knowledge and provides implications applicable to future studies, clinical management, or policymaking. More research is needed to address the limitations noted and increase understanding of optimal interventions in managing chronic low back pain. Better management of persistent low back pain may be achieved through a partnership among medical practitioners, researchers, and policymakers who should emphasize treatment supported by scientific findings and consider patients' needs and preferences when deciding on the right action.

6. LIMITATIONS

Some limitations of the systematic review and meta-analysis are divergent participant demographics, treatments, and outcome measures in the included studies. Follow-up periods, assessment procedures, and research designs may have influenced the consistency of the results. Besides, some of the studies in the review were of poor quality, which could have compromised the validity and generalizability of the findings. Potential factors here are limited sample size, problems with research design, and incomplete or incorrect data reporting. Additionally, publication bias is a possibility that cannot be fully eliminated because studies that reported favorable results are more likely to see the light of the day, hence causing an increased treatment effect. In addition, the absence of research conducted in languages apart from English and unreported data would have undermined the accuracy of the evidence base. In conclusion, the long-term safety and efficacy of conservative treatments for chronic low back pain remain uncertain. More research is needed to assess their safety comprehensively and prolong the follow-up duration.

7. IMPLICATIONS

This systematic review and meta-analysis have shown that there may be some benefits in non-surgical care methods for back pain, like acupuncture, physical therapy, or medications. However, these methods showed little decrease in pain intensity but higher patient satisfaction and functional outcomes, though some studies provided conflicting results. When choosing treatments, consider the personal preferences, values, and concerns of each patient, as their preference significantly influences the decisions for therapy and outcomes for the patient. Furthermore, future research should also concentrate on overcoming the limitations of previous studies if we are to obtain better clarification on the long-term effects and safety profiles of non-surgical treatments for back pain. These shortcomings should include standardizing outcome measures, improving study designs, and conducting long-term follow-up evaluations.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Hartvigsen J, Hancock MJ, Kongsted A, et al. What low back pain is and why we need to pay attention. The Lancet. 2018; 391: 2356–67.
DOI:10.1016/s0140-6736(18)30480-x

2. Carsten Oliver Schmidt, Heiner Raspe, Pfingsten M, et al. Back Pain in the German Adult Population. Spine. 2007;32: 2005–11.
DOI:10.1097/brs.0b013e318133fad8
3. Organization WH: Priority Medicines for Europe and the World. iriswhoint. Published Online First: 2004.
Available:https://iris.who.int/handle/10665/68769
4. Fayad F, Lefevre-Colau MM, Poiraudeau S, et al. Chronicité, récidive et reprise du travail dans la lombalgie: facteurs communs de pronostic. Annales de Réadaptation et de Médecine Physique. 2004;47:179–89.
10.1016/j.annrmp.2004.01.005
5. Ahmed A, Kalhoro MA, Aamer N, Kumar K, Das S, Keerio NH, Noor SS. Correlation of Chronic Back Pain and Hyperuricemia, Our Hospital Experience. J. Pharm. Res. Int. 2021;33(52B):293-298.
Available:https://journaljpri.com/index.php/JPRI/article/view/4404
[Accessed on 2024 Jun. 20];
6. Renner BB, Huldah HA. Chronic Low Back Pain Manifestation among Bank Workers in Southern Nigeria: A Current Disorder Exacerbated by Long Hours on Uncomfortable Chairs. J. Adv. Med. Med. Res. 2021;33(19):47-54.
Available:https://www.journaljammr.com/index.php/JAMMR/article/view/4188
[Accessed on 2024 Jun. 20];
7. Stochkendahl MJ, Kjaer P, Hartvigsen J, Kongsted A, Aaboe J, Andersen M, Andersen MØ, Fournier G, Højgaard B, Jensen MB, Jensen LD. National Clinical Guidelines for non-surgical treatment of patients with recent onset low back pain or lumbar radiculopathy. European Spine Journal. 2018;27:60-75.
8. Poder TG, Beffarat M, Benkhalti M, Ladouceur G, Dagenais P. A discrete choice experiment on preferences of patients with low back pain about non-surgical treatments: Identification, refinement and selection of attributes and levels. Patient Preference and Adherence. 2019:933-40.
9. Bontoux L, Fouquet B, Laulan J, et al. Table ronde sur la place de la chirurgie dans les douleurs chroniques du membre supérieur. Chirurgie de la Main. 2009;28: 207–18.
DOI:10.1016/j.main.2009.04.003
10. Waddell G. Simple low back pain: Rest or active exercise? Annals of the Rheumatic Diseases. 1993;52:317–9.
DOI: 10.1136/ard.52.5.317
11. Náfrádi L, Nakamoto K, Schulz PJ. Is patient empowerment the key to promote adherence? A systematic review of the relationship between self-efficacy, health Locus of Control and Medication adherence. PLOS ONE. 2017;12.
DOI: 10.1371/journal.pone.0186458
12. Haldeman S, Dagenais S. A supermarket approach to the evidence-informed management of chronic low back pain. The Spine Journal. 2008;8:1–7.
DOI: 10.1016/j.spinee.2007.10.009
13. Balagué F, Dudler J. An overview of conservative treatment for lower back pain. International Journal of Clinical Rheumatology. 2011;6:281–90.
DOI: 10.2217/ijr.11.13
14. Aboagye E. Valuing Individuals' Preferences and Health Choices of Physical Exercise. Pain and Therapy. 2017;6:85–91.
DOI: 10.1007/s40122-017-0067-4
15. Leventhal H, Phillips LA, Burns E. The Common-Sense Model of Self-Regulation (CSM): a dynamic framework for understanding illness self-management. Journal of Behavioral Medicine. 2016, 39:935–46.
DOI: 10.1007/s10865-016-9782-2
16. de Campos TF. Low back pain and sciatica in over 16s: assessment and management NICE Guideline [NG59]. Journal of Physiotherapy. 2017;63:120.
DOI: 10.1016/j.jphys.2017.02.012
17. Tetzlaff J, Page M, Moher D: The Prisma 2020 statement: development of and key changes in an updated guideline for reporting systematic reviews and meta-analyses. Value in Health. 2020;23: S312–3.
DOI: 10.1016/j.jval.2020.04.1154
18. Sarkis-Onofre R, Catalá-López F, Aromataris E, Lockwood C. How to Properly Use the PRISMA Statement. Systematic Reviews. 2021;10.

DOI: 10.1186/s13643-021-01671-z

19. Schardt C, Adams MB, Owens T, Keitz S, Fontelo P. Utilization of the PICO Framework to Improve Searching PubMed for Clinical Questions. BMC Medical Informatics and Decision Making. 2007;7: 16.
DOI: 10.1186/1472-6947-7-16
20. Higgins JPT, Altman DG, Gotzsche PC, et al. The Cochrane Collaboration's tool for Assessing Risk of Bias in Randomised Trials. BMJ. 2011;343:
DOI: 10.1136/bmj.d5928
21. Kennedy S, Baxter GD, Kerr DP, Bradbury I, Park J, McDonough SM. Acupuncture for acute non-specific low back pain: A pilot randomised non-penetrating sham controlled trial. Complementary Therapies in Medicine. 2008;16:139–46.
DOI: 10.1016/j.ctim.2007.03.001
22. Moura C de C, Chaves E de CL, Chianca TCM, Ruginsk SG, Nogueira DA, Iunes DH. Effects of auricular acupuncture on chronic pain in people with back musculoskeletal disorders: a randomized clinical trial. Revista da Escola de Enfermagem da USP. 2019; 53.
DOI: 10.1590/s1980-220x2018009003418
23. Kizhakkeveettil A, Rose KA, Kadar GE, Hurwitz EL. Integrative Acupuncture and Spinal Manipulative Therapy Versus Either Alone for Low Back Pain: A Randomized Controlled Trial Feasibility Study. Journal of Manipulative and Physiological Therapeutics. 2017;40:201–13.
DOI: 10.1016/j.jmpt.2017.01.002
24. Comachio J, Oliveira CC, Rodrigues Silva IF, Magalhães MO, Marques AP. Effectiveness of manual and electrical needle stimulation in acupuncture for chronic nonspecific low back pain: A randomized controlled trial. Journal of Acupuncture and Meridian Studies. 2020; 13.
DOI: 10.1016/j.jams.2020.03.064
25. Kong JT, Puetz C, Tian L, et al. Effect of Electroacupuncture vs Sham Treatment on Change in Pain Severity Among Adults With Chronic Low Back Pain. JAMA Network Open. 2020;3: e2022787.
DOI:10.1001/jamanetworkopen.2020.22787
26. Seo B-K, Han K, Kwon O, Jo D-J, Lee J-H. Efficacy of Bee Venom Acupuncture for Chronic Low Back Pain: A Randomized, Double-Blinded, Sham-Controlled Trial. Toxins. 2017;9:361.
DOI: 10.3390/toxins9110361
27. Manchikanti L. Effectiveness of Long-Term Opioid Therapy for Chronic Non-Cancer Pain. Pain Physician. 2011;3;14:E133–56.
DOI: 10.36076/ppj.2011/14/e133
28. Rauck RL, Srinivas Nalamachu, Wild JE, Walker GS, Robinson CY, Davis CS, Farr SJ. Single-Entity Hydrocodone Extended-Release Capsules in Opioid-Tolerant Subjects with Moderate-to-Severe Chronic Low Back Pain: A Randomized Double-Blind, Placebo-Controlled Study. Pain Medicine. 2014;15:975–85.
DOI: 10.1111/pme.12377
29. Williams CM, Maher CG, Latimer J, McLachlan AJ, Hancock MJ, Day RO, Lin C-WC. Efficacy of paracetamol for acute low-back pain: a double-blind, randomised controlled trial. The Lancet. 2014;384: 1586–96.
DOI: 10.1016/s0140-6736(14)60805-9
30. Peng M-S, Wang R, Wang Y-Z, et al. Efficacy of Therapeutic Aquatic Exercise vs Physical Therapy Modalities for Patients With Chronic Low Back Pain. JAMA Network Open. 2022;5:e2142069.
DOI:10.1001/jamanetworkopen.2021.42069
31. Kim S-K, Min A, Jeon C, Kim T, Cho S, Lee S-C, Lee C-K. Clinical outcomes and cost-effectiveness of massage chair therapy versus basic physiotherapy in lower back pain patients: A randomized controlled trial. Medicine. 2020;99:e19514.
DOI: 10.1097/MD.0000000000019514
32. Coeytaux RR, Kaufman JS, Kaptchuk TJ, Chen W, Miller WC, Callahan LF, Mann JD. A Randomized, Controlled Trial of Acupuncture for Chronic Daily Headache. Headache: The Journal of Head and Face Pain. 2005;45:1113–23.
DOI: 10.1111/j.1526-4610.2005.00235.x

33. Luo Y, Yang M, Liu T, Zhong X, Tang W, Guo M, Hu Y. Effect of hand-ear acupuncture on chronic low-back pain: A randomized controlled trial. PubMed. 2019; 39:587–98.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of the publisher and/or the editor(s). This publisher and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.

© Copyright (2024): Author(s). The licensee is the journal publisher. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (http://creativecommons.org/licenses/by/4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Peer-review history:
The peer review history for this paper can be accessed here:
https://www.sdiarticle5.com/review-history/119392