**Article Full Title**

Do Manual Therapies Help Low Back Pain? A Comparative Effectiveness Meta-analysis

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**Paper Abstract**

Study design: Meta-analysis methodology was extended to derive comparative effectiveness information on spinal manipulation for low back pain.

Objective: Determine relative effectiveness of spinal manipulation therapies (SMTs), medical management, physical therapies, and exercise for acute and chronic nonsurgical low back pain.

Summary of background data: Results of spinal manipulation treatments of nonsurgical low back pain are equivocal. Nearly 40 years of SMT studies were not informative. Methods: Studies were chosen on the basis of inclusion in prior evidence syntheses. Effect sizes were converted to standardized mean effect sizes and probabilities of recovery. Nested model comparisons isolated nonspecific from treatment effects. Aggregate data were tested for evidential support as compared with shams. Results: Of 84% acute pain variance, 81% was from nonspecific factors and 3% from treatment. No treatment for acute pain exceeded sham's effectiveness. Most acute results were within 95% confidence bands of that predicted by natural history alone. For chronic pain, 66% of 98% was nonspecific, but treatments influenced 32% of outcomes. Chronic pain treatments also fit within 95% confidence bands as predicted by natural history. Though the evidential support for treating chronic back pain as compared with sham groups was weak, chronic pain seemed to respond to SMT, whereas whole systems of clinical management did not. Conclusion: Meta-analyses can extract comparative effectiveness information from existing literature. The relatively small portion of outcomes attributable to treatment explains why past research results fail to converge on stable estimates. The probability of treatment superiority matched a binomial random process. Treatments serve to motivate, reassure, and calibrate patient expectations--features that might reduce medicalization and augment self-care. Exercise with authoritative support is an effective strategy for acute and chronic low back pain.

**NIH Risk of Bias Tool**

Quality Assessment of Systematic Reviews and Meta-Analyses

**Is the review based on a focused question that is adequately formulated and described?**

Yes

**Were eligibility criteria for included and excluded studies predefined and specified?**

No

**Did the literature search strategy use a comprehensive, systematic approach?**

No

**Were titles, abstracts, and full-text articles dually and independently reviewed for inclusion and exclusion to minimize bias?**

No

**Was the quality of each included study rated independently by two or more reviewers using a standard method to appraise its internal validity?**

Yes

**Were the included studies listed along with important characteristics and results of each study?**

**Was publication bias assessed?**

No

**Was heterogeneity assessed? (This question applies only to meta-analyses.)**

No

**Key Finding #1**

Change in pain levels for acute low back pain cases occurred in 84% of cases, and 81% of those changes were attributed to nonspecific factors.

**Key Finding #2**

Change in pain levels for chronic low back pain cases occurred in 98% of cases, 66% of change was attributed to nonspecific factors and 32% was attributed to treatment. Chronic low back pain seems to respond to spinal manipulative therapies.

**Key Finding #3**

Natural history appears to be more effective than current treatments for acute or chronic low back pain.

**Key Finding #4**

Patients receiving sham treatments consistently improved while wait-list patients continued to get worse. This illustrates the importance and value of seeing and attending to patients and the beneficial impact it can have on outcomes.

**Please provide your summary of the paper**

The following paper addresses the efficacy of spinal manipulative therapies (SMTs) as a treatment option for acute (&lt;6 weeks) or chronic (&gt;6 weeks) conditions of low back pain. The paper details how acute and chronic cases of low back pain can resolve via regression to the mean or by their natural history in many cases. According to the results, 3% of low back pain treatments for acute cases influenced pain level variance. Additionally, 32% of low back pain treatments could be attributed to treatment during chronic cases. Natural history is proven to be effective for certain diagnoses in physical therapy and appears to be an effective treatment of the acute low back. However, SMT does appear to be an effective treatment for chronic low back pain cases. It is hard to quantify the effectiveness of SMT when the therapeutic mechanism is ambiguous. However, we must not mistake ambiguity for ineffectiveness. SMTs do have a place in the therapist's toolbox as an effective pain modulator, further research is needed to assess the value of the treatment as a first line of defense when treating patients experiencing pain.

**Please provide your clinical interpretation of this paper. Include how this study may impact clinical practice and how the results can be implemented.**

This paper doesn't provide enough inclusion criteria information in the methods section for me to recognize the legitimacy of the meta-analysis. The paper details how the inclusion criteria took spinal manipulative therapy (SMT) literature from 26 years and classified them into 5 groups: SMT, exercise, physiotherapy modalities, usual medical care, and control groups. A sixth category was separated from the SMT group as whole system case management. Unfortunately, these are all the inclusion criteria given, leaving room for biased studies to enter the pool of data. Due to ambiguous inclusion criteria, we must heavily question the findings of this paper. The paper highlights the strength of natural history and regression to the mean as treatment options for low back pain. Clinically, I think educating patients on this phenomenon has value. Low back pain can be frightening, and educating patients on their condition and their ability to get better without treatment can be valuable. Additionally, this paper supports SMTs in chronic low back pain patients. I believe SMTs can be therapeutic for adequate candidates, and this paper supports that notion. Therapists could potentially use SMTs for pain modulation throughout the continuum of care provided to chronic patients. However, therapists must not confuse the effects of SMTs with the underlying effectiveness of natural history.