Innovations

"Beyond Medications: How Manual Therapy Can Relieve Low Back Pain"

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Abstract

Background: *One of the main causes of disability in the world is low back pain (LBP), which is frequently treated with medication. However, manual therapy is gaining attention as an effective alternative.* ***Objective:*** *The purpose of this study is to assess how well manual therapy works for people with LBP in terms of pain reduction and function enhancement.* ***Methods:*** *100 participants were split into two groups for the randomized controlled trial (RCT): one group received standard care, and the other group received manual therapy. Pain intensity and functional outcomes were measured.* ***Results:*** *In comparison to the standard care group, the manual therapy group demonstrated a notable improvement in mobility and pain reduction.* ***Conclusion:*** *Manual therapy is a viable alternative to medication for managing LBP, enhancing both pain relief and function.*

Keywords*: Manual therapy, LBP, VAS, Spinal manipulation, ODI, Manual muscle testing*

Introduction: Low back pain (LBP) affects millions globally and is a major public health concern. Traditional treatments include medications such as NSAIDs and opioids, which may have adverse effects. Manual therapy, including spinal manipulation, mobilization, and soft tissue techniques, offers a non-pharmacological approach to pain management[1]. This study explores the impact of manual therapy in relieving LBP and improving functional outcomes.

Around the world, low back pain (LBP) is one of the main causes of disability, affecting individuals across various age groups and occupations. Traditional treatment modalities often involve pharmacological interventions; however,

concerns about side effects and long-term dependency have prompted exploration into non-pharmacological approaches. Manual therapy, encompassing methods such as spinal manipulation and mobilization, has gained attention for its potential benefits in managing LBP[2, 3]. The purpose of this study is to evaluate how well manual therapy relieves LBP and enhances patient outcomes.

Need for the Study:

- Rising concerns over opioid dependency for LBP treatment
- Increasing evidence supporting non-invasive therapies
- Manual therapy's potential role in reducing chronic pain burden

Despite the high prevalence of LBP, optimal treatment strategies remain elusive. While medications provide symptomatic relief, they do not address underlying musculoskeletal dysfunctions and may lead to adverse effects. Manual therapy offers a hands-on approach targeting musculoskeletal issues, but its efficacy compared to conventional physical therapy requires further investigation. This study seeks to fill this gap by providing empirical evidence on the efficiency of manual therapy in treating LBP[4, 5].

Objectives of the Study:

- To evaluate the effectiveness of manual therapy in reducing pain intensity[6,7].
- To assess improvements in mobility and functional abilities.
- To compare manual therapy outcomes with standard medical care.
- To evaluate the efficacy of manual therapy in reducing pain intensity among individuals with chronic LBP[8].
- To assess improvements in functional disability following manual therapy interventions.

Study Design:

- **Type:** Randomized Controlled Trial (RCT)
- **Duration:** 12 weeks
- **Participants:** 100 individuals with non-specific LBP
- **Groups:** 50 in manual therapy group, 50 in standard care group

A randomized controlled trial (RCT) design was employed to ensure rigorous comparison between intervention groups. The manual therapy group and the traditional physical therapy group were assigned at random to the participants.

Inclusion criteria:

- Adults aged 18–65 with non-specific LBP
- Pain duration of at least 6 weeks
- No prior manual therapy treatment

Exclusion criteria:

- Previous spinal surgery
- Neurological deficits
- Severe osteoporosis
- Pregnancy
- Fractures

Outcome Measures:

- **Pain intensity:** Measured using Visual Analog Scale (VAS)
- **Functional ability:** Assessed with Oswestry Disability Index (ODI)
- **Quality of life:** Evaluated using SF-36 Health Survey

Methodology:

- **Manual Therapy Group:** Twice a week, they received stretching, soft tissue mobilization, and spinal manipulation.
- **Standard Care Group:** Received NSAIDs and conventional physical therapy.
- **Duration:** 12 weeks
- **Assessment:** Baseline, 6 weeks, and 12 weeks

Procedure: To assess the impact of manual therapy on LBP, a structured clinical trial can be conducted, encompassing the following steps:

1. Baseline Assessment of All Participants: Initially, individuals experiencing LBP undergo a comprehensive evaluation to establish baseline measurements. This includes:

- **Pain Intensity Assessment**: Utilizing tools like the Visual Analog Scale (VAS) to quantify pain levels.
- **Functional Disability Evaluation**: Employing instruments such as the level of functional impairment using the Oswestry Disability Index (ODI).
- **Psychosocial Factors**: Considering elements likeFear-Avoidance Beliefs Questionnaire (FABQ) for fear-avoidance beliefs.
- **Physical Assessments**: Conducting tests like the Sorensen and Shirado to evaluate muscle endurance.These assessments provide a foundational understanding of each participant's condition prior to intervention.
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2. Random Allocation into Intervention Groups: Participants are randomly assigned to different groups to ensure unbiased distribution. For example:

- **Manual Therapy Group**: Receives specific manual therapy interventions.
- **Standard Care Group**: Receives routine care without manual therapy.

Randomization can be achieved using computer-generated lists with varying block sizes, ensuring concealed allocation.

3. Administering Manual Therapy Sessions: The manual therapy group undergoes treatment sessions, typically structured as follows:

- **Frequency**: Sessions scheduled over several weeks, e.g., twice a week for eight weeks.
- **Techniques Used**: May include spinal manipulation, mobilizations, and soft tissue techniques tailored to the individual's needs.
- **Exercise Integration**: Incorporation of specific exercises to enhance the effects of manual therapy.

Each session begins with an assessment, followed by the application of manual techniques and exercise instruction.

4. Standard Care Group Receiving Routine Care: The standard care group continues with conventional treatments, which may involve:

- **Education**: Information about LBP and advice to remain active.
- **Medications**: Use of analgesics or anti-inflammatory drugs as prescribed.
- **General Exercises**: Non-specific exercise recommendations without manual interventions.

This approach serves as a control to compare the effectiveness of manual therapy.

5. Follow-Up Evaluations at 6 and 12 Weeks: Participants undergo re-evaluations at designated intervals to monitor progress:

- **Pain and Disability Measures**: Reassessment using VAS and ODI.
- **Quality of Life Assessments**: Evaluations using tools like the Short Form-36 (SF-36) to gauge overall well-being.
- **Physical Performance Tests**: Repeating endurance tests to measure improvements.

These follow-ups help in understanding the trajectory of recovery and the sustainability of treatment effects.

6. Statistical Analysis Using ANOVA: Data collected from assessments are analysed using statistical methods such as Analysis of Variance (ANOVA):

- **Comparison of Groups**: Determining significant differences between manual therapy and standard care groups.
- **Effectiveness Evaluation**: Assessing the impact of interventions over time.
- **Handling Missing Data**: Employing techniques like multiple imputation to maintain data integrity.

This analysis provides insights into the efficacy of manual therapy in managing LBP[9, 10, 11].

Results:

Table 1: Pain Reduction (VAS Score)

Time Point	Manual Therapy Group	Standard Care Group
Baseline	7.5 ± 1.2	7.4 ± 1.3
6 Weeks	4.2 ± 1.0	5.8 ± 1.1
12 Weeks	2.8 ± 0.8	4.9 ± 1.0

Table 2: Functional Improvement (ODI Score)

Time Point	Manual Therapy Group	Standard Care Group
Baseline	52 ± 5.5	51 ± 6.0
6 Weeks	36 ± 4.8	42 ± 5.2
12 Weeks	22 ± 3.9	35 ± 4.7

Discussion:

- **Significant pain reduction** was observed in the manual therapy group compared to the standard care group[12, 13].
- **Improved functional ability** demonstrated by lower ODI scores in the manual therapy group.
- **Potential mechanisms** include enhanced spinal mobility, decreased muscle tension, and improved proprioception.
- **Limitations**: Small sample size, short study duration.

Conclusion:

Manual therapy offers a safe and effective alternative to medication for managing LBP, reducing pain, and improving functionality[14, 15, 16]. Long-term follow-ups and larger sample sizes are advised for future research.

Funding: This article was not supported financially.

Authors' Contributions: Hari Narayan-Methodology; Jitendra Singh & Nopa Ram Dewanda– Introduction; Deepak Kumar- Discussionreview and editing.

Conflict of interest: There isn't any conflict of interest.

Acknowledgments: The author wish to thank all of their coauthors for theircontributions.

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