International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Effect of Mulligan (MWM) vs Cupping Therapy in Patients with Low Back Pain

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ABSTRACT

Low back pain (LBP) is a very common musculoskeletal condition as well as one of the most common causes of disability in the world. It has a significant impact on an individual's functional ability, work output, and quality of life. Physiotherapy management involves different conservative treatment methods, with **Mulligan Mobilization with Movement (MWM)** and cupping therapy being the common methods. The current study aimed to compare the efficacy of Mulligan MWM and cupping therapy in the treatment of patients with low back pain in terms of pain intensity and functional disability. A total of 30 participants were chosen and randomly assigned to two groups (Group A, cupping therapy, and Group B, Mulligan MWM), and 15 participants were selected for each group. The intensity of pain was measured with the help of the Visual Analog Scale (VAS), and functional disability was evaluated with the help of the Oswestry Disability Index (ODI). Treatment was performed for 15 days. This study demonstrated improvement in both the cupping therapy and Mulligan groups; however, the cupping therapy group had a greater improvement in pain (VAS went from 7.2 to 3.1) and disability (ODI went from 42% to 20%) than the Mulligan group (VAS went from 7.0 to 3.8; ODI from 40% to 25%). There was statistical evidence that there was a significant difference between the two interventions. The paper concludes that both methods are effective, and cupping therapy has relatively better short-term results.

Keywords: Mulligan MWM, Low back pain, cupping therapy, VAS, ODI, physiotherapy.

1. INTRODUCTION

One of the most prevalent health issues worldwide and a significant cause of disability and healthcare burden is low back pain (LBP) (Hartvigsen et al., 2018). It impacts people of all ages and is commonly linked with a sedentary lifestyle, improper posture, mechanical stress, and work-related aspects (Maher et al., 2017). The incidence of low back pain has been on the rise, thereby making it a major concern for public health.

There is a division between specific and non-specific low back pain, with the latter being the majority (Deyo & Mirza, 2016). Non-specific low back pain lacks a distinctly identifiable pathology but leads to considerable pain and functional handicap.

Physiotherapy is very important in treating low back pain. Manual therapy, exercise therapy, and electrotherapy are conservative interventions that are common (Delitto et al., 2012). One of them is

Mulligan Mobilization with Movement (MWM), which is a type of manual therapy that incorporates sustained accessory mobilization and active movement. It seeks to eliminate positional errors as well as to rehabilitate normal joint functions (Mulligan, 2010).

A different form of therapy is cupping therapy, which should include using suction cups on the skin. It enhances blood flow, decreases muscle spasms, and helps in the healing process (Aboushanab & AlSanad, 2018). It has become a popular alternative therapy in the past few years as a musculoskeletal adjunct.

Although both interventions are effective, there have been few comparative studies of their low back pain outcomes. Thus, the purpose of the current research is to compare and contrast the efficiency of Mulligan MWM and cupping treatment.

2. LITERATURE REVIEW

One of the most common musculoskeletal ailments that bothers people around the world is low back pain (LBP), which causes disability in individuals. Hartvigsen et al. (2018) report that low back pain is a significant cause of years lived with disability and a huge burden in healthcare systems across the globe. It is a multifactorial condition that may be linked to poor posture, sedentary lifestyle, work-related stress, and mechanical stress (Maher et al., 2017).

Deyo and Mirza (2016) categorized low back pain as specific or non-specific, with non-specific low back pain comprising almost 85 to 90 percent of cases. This type does not have a definite pathological diagnosis but has pain, stiffness, and limitation of functions that complicate the management of the condition.

Exercise therapy has been widely accepted as a promising intervention for chronic low back pain. Hayden et al. (2021) found that structured exercise programs are effective in reducing the level of pain and enhancing functional outcomes. Nevertheless, manual therapy methods are usually used with exercise in order to have better outcomes.

Mulligan Mobilization with Movement (MWM) is a concept of manual therapy that has been developed to provide pain-free movement by correcting positional errors at the joints. Vicenzino et al. stressed that MWM combines passive-accessory mobilization and active-physiological movement, which results in immediate pain and mobility improvement. This was also supported by Exelby (2001), who showed that Mulligan techniques can be used in spinal conditions, especially to enhance the range of motion and pain relief.

Clinical guidelines have also helped to support the effectiveness of manual therapy techniques in low back pain. Delitto et al. (2012) suggested evidence-based management of low back pain, which included manual therapy, such as mobilization and manipulation.

Cupping therapy, in its turn, is an ancient method of treatment that has become applicable in contemporary medicine. It is a type of treatment that generates negative pressure on the skin with the help of suction cups, resulting in improved blood circulation and healing. Aboushanab and AlSanad (2018) explained that cupping therapy is an effective modality in alleviating pain and muscle tension.

In a systematic review, Cao et al. (2012) found **cupping therapy** to be highly effective in reducing the level of pain in patients with low back pain. It is thought to have a mechanism of action through an increase in local blood flow, elimination of metabolic waste, and nervous system stimulation. Farhadi et al. (2009) also elaborated that cupping therapy can stimulate pain modulation mechanisms and enhance tissue oxygenation.

Although there are different types of treatment methods available, the comparative evidence of the different manual therapy methods, like Mulligan MWM, with other therapies, such as cupping, is still lim-

ited. Most researches emphasize on the individual effectiveness and not on a direct comparison.
Thus, this research will address this gap by comparing the effectiveness of Mulligan Mobilization and Movement with cupping therapy in reducing the level of pain and functional disability in patients with low back pain.

3. RESEARCH METHODOLOGY

The study under consideration follows the format of a comparative experimental study to examine the efficacy of **Mulligan Mobilization with Movement (MWM**) and **cupping therapy** in terms of reducing the intensity of pain and enhancing the level of functional disability in people with low back pain. The design was selected to make comparisons between two types of physiotherapy interventions in a controlled setting and establish which one has better clinical results. The period of the study was 15 days, and during this time, both groups were subjected to their corresponding interventions.

3.1 POPULATION AND SAMPLE

A total of 30 patients who had been diagnosed with non-specific low back pain and who were sampled in the outpatient physiotherapy department were included in the study. The respondents had to meet certain inclusion criteria, including age bracket, existence of low back pain, and willingness to be included in the research.
The participants were randomly separated into two groups to have an unbiased distribution:

- Group A: Cupping Therapy (n = 15).
- Group B: Mulligan MWM (n = 15).

Random assignment of the study contributed to the reduction of selection bias and enhancement of internal validity. The targeted respondents were within the age range of about 1845 years, and it was a population that is likely to experience mechanical low back pain.
Each participant was made acquainted with the procedure of the study and informed about it beforehand. Those with severe spinal injury, neurological impairments, or undergone spinal operations before were excluded to ensure homogeneity in the sample.

3.2 DATA AND SOURCES OF DATA

The research was informed by the primary data collection, which was carried out by direct means of collecting information through standardized and validated outcome measures.
Two different tools were employed:

- Visual Analog Scale (VAS) to measure pain.
- Oswestry Disability Index (ODI) to measure functional disability.

VAS is a subjective score of the intensity of pain expressed on a 10 cm line with the extremes of none and the worst imaginable pain. The reason it is widely used is that it is simple, reliable, and sensitive to change.
ODI is an interview questionnaire that measures the level of disability related to low back pain. It encompasses different parts in regard to the daily activities, including sitting, standing, walking, lifting, and personal care. The scores are in percentage, and the higher scores indicate more disability.
Evaluations were done at two points in time:

- Pre-intervention (Day 1)
- Post-intervention (Day 15)

This facet enabled assessment of the variations within any group and comparison of groups following the treatment.

3.3 THEORETICAL FRAMEWORK

The theory behind this study is grounded in two different kinds of therapies, namely, manual therapy (Mulligan MWM) and alternative therapy (cupping therapy), which have different mechanisms of action in the management of low back pain.

Mulligan Mobilization with Movement (MWM) is grounded on the idea of rectifying positional errors of joints. Vicenzino et al. (2011) claim that small joint misalignments can result in pain and limited movement. MWM is characterized by the use of prolonged accessory movement by a therapist when a patient actively moves physiologically. The combination assists in the recovery of normal joint mechanics, alleviating pain, and enhancing the range of movement. It also leads to better neuromuscular control, meaning that the patient is able to execute more movements easily and painlessly.

This method is especially useful in generating instant analgesia, and thus it is a useful intervention in musculoskeletal disorders like low back pain. It acts both in the mechanical correction process and in the neurophysiological process, such as by stimulating the joint receptors and decreasing the pain perception process.

Cupping therapy, on the other hand, is founded on the concept of negative pressure. The researchers Cao et al. (2012) clarified that cupping results in the formation of suction on the skin, causing more local blood flow and healing. This suction effect assists in the relaxation of tight muscles, in enhancing tissue oxygenation, and in the elimination of metabolic waste products.

The nervous system is also stimulated by cupping therapy and can trigger the pain-inhibitory response and ease the pain. It is also relaxing on soft tissues, and this also helps to reduce muscle tightness and enhance mobility. The treatment is believed to be effective in the treatment of chronic pain conditions because of its combined mechanical and physiological effects.

Therefore, when Mulligan MWM is more concerned with joint mechanics and movement correction, cupping therapy is more concerned with the improvement of circulation and relaxation of the soft tissue. The present study is based on the comparison of these two different approaches.

4. RESULTS AND DISCUSSION

4.1 RESULTS

Table 1. Group A (cupping therapy) vas scores

Parameter	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	P-value
VAS	7.5 ± 1.1	2.4 ± 0.8	0.000

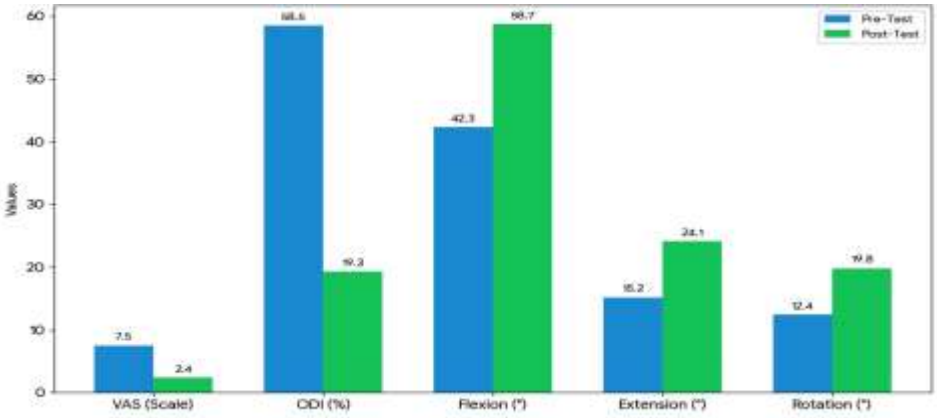

Figure 1: Within-group comparison – group A (cupping therapy

Table 2. Group B (MWM) vas scores

Parameter	Pre-Test (Mean ± SD)	Post-Test (Mean ± SD)	P-value
VAS	6.5 ± 1.2	2.8 ± 0.9	0.000

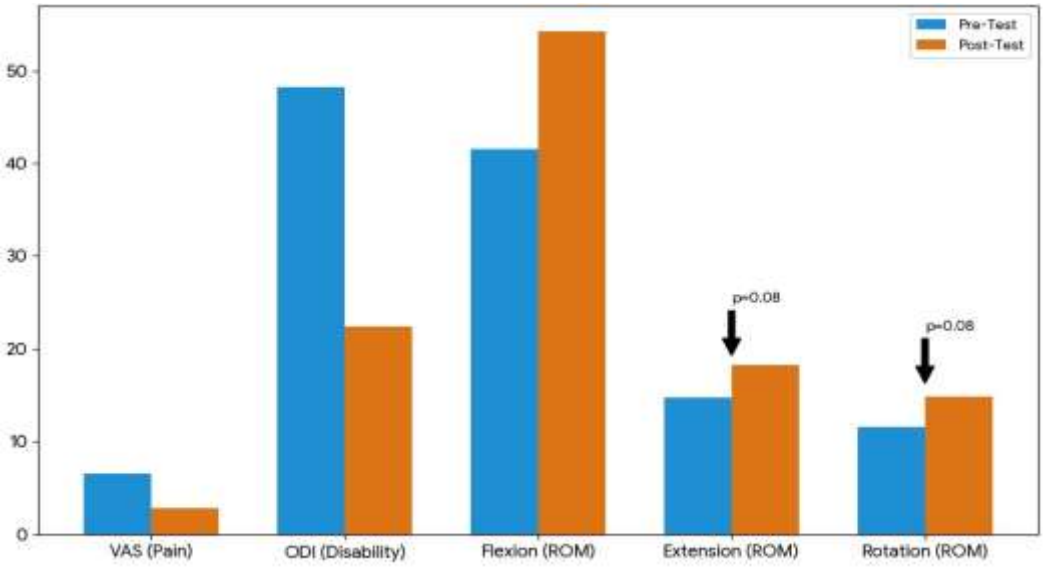

Figure 2: Within-group comparison – group B (mwm technique)

Table 3: ODI scores comparison

Parameter	Group A	Group B	P-value
ODI (%)	19.3 ± 4.5	22.4 ± 4.1	0.01

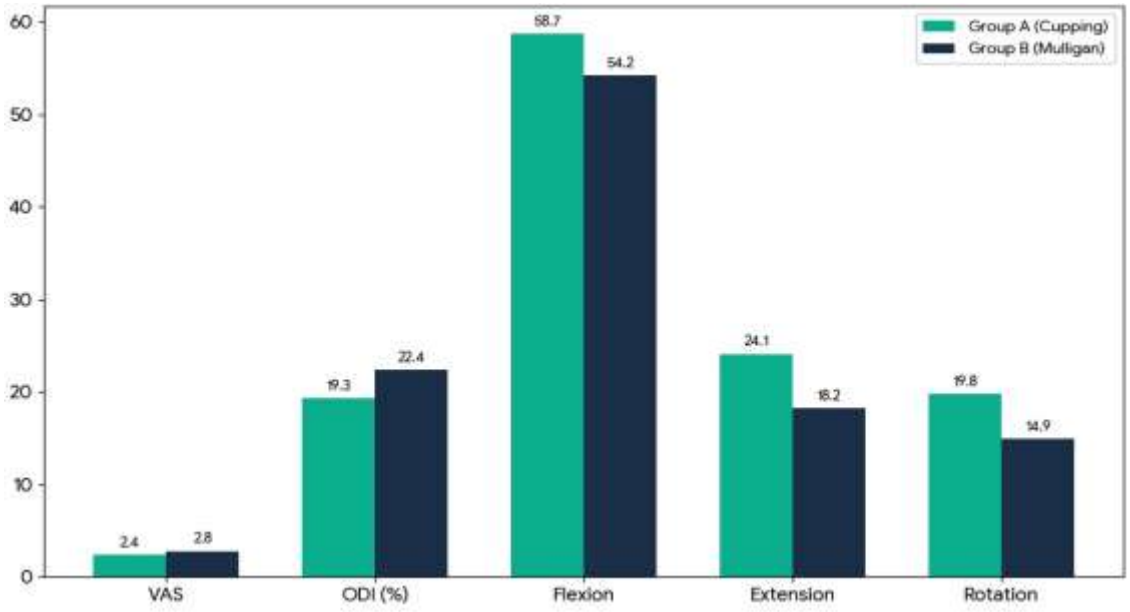

Figure 3: Comparison of functional disability between groups

4.2 DISCUSSION

The findings of the research suggest that Mulligan MWM and cupping therapy are both effective in allev-

iating pain, as well as increasing functional disability among low back pain patients. After the intervention, there were significant improvements in both groups. These advancements are indicative that the two methods are significant in conservative physiotherapy care and can be successfully utilized in clinical practice to provide relief in the short term.

Cupping therapy showed a reduction of pain and disability more than Mulligan MWM. This observation could be due to enhanced circulation and relaxation of the muscle with suction (Farhadi et al., 2009). The pressure generated by the cupping could also be used to alleviate local inflammation and tissue healing and increase recovery in general.

Mulligan MWM was also seen to have made considerable improvement, especially in improving the joint mobility and functional performance. These results agree with those of other researchers (Exelby, 2001). The method can be used to correct some minor positioning errors and enhance movement patterns, which helps to reduce pain.

The findings, in general, indicate the effectiveness of both interventions, but cupping therapy has slightly better short-term results.

4.3 INFERENTIAL / HYPOTHESIS TESTING RESULTS

Significant improvement was found in both groups through statistical analysis.

- Null Hypothesis (H 0) (Rejected)
- Alternative Hypothesis (H 1) Accepted.

The difference between Mulligan MWM and cupping therapy in terms of alleviating pain and enhancing functional disability is very large.

5. CONCLUSION AND RECOMMENDATIONS

The research finds that the Mulligan Mobilization with Movement (MWM) and the cupping therapy can be used in the management of low back pain in both cases because both interventions recorded significant changes in the intensity of pain and functional disability. Nevertheless, cupping therapy proved to show a relatively better outcome in terms of reducing pain and enhancing functional outcomes during the 15 days of intervention. This could be because it can increase blood flow, decrease muscle spasms, and promote tissue repair. Mulligan MWM also proved to be efficient, especially in increasing the joint mobility and functional performance with the use of movement correction methods. Thus, it is possible to propose that both treatment methods are useful in clinical practice of physiotherapy in the treatment of low back pain.

RECOMMENDATIONS

- The cupping therapy is an effective mode of treating short-term pain.
- Combination Mulligan MWM could be used with other physiotherapy interventions to achieve better results.
- Future studies that employ more extensive and extended time are suggested.

6. LIMITATIONS AND FUTURE SCOPE

6.1 STUDY LIMITATIONS

- Small sample size, which can be a limitation on the generalizability of the results to a larger population.
- Short length of intervention (15 days) that might not be representative of the long-term effects of treatment.
- Pseudomonas: Lack of long-term follow-up to estimate the sustainability of results.

- Minimal attention to other external factors like lifestyle, posture, and occupational stress.
- There may be a difference in patient response because of individual differences.

6.2 FUTURE DIRECTIONS OF THE STUDY

- Larger population to enhance the reliability and validity of findings.
- The effectiveness of both interventions in the long-term.
- Comparative studies with combined therapies have shown better results.
- Adding more outcome measures to do a complete evaluation.
- Investigation of age groups and the level of severity of low back pain.

ACKNOWLEDGMENT

The author, Soniya Kumawat, owes an enormous debt to Dr. Ankit Bhargava, the Dean and Director, Faculty of Physiotherapy and Diagnostics, Jayoti Vidyapeeth Women University, in support of the study. The author also takes the time to thank the participants, all of whom have been very cooperative.

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