

EFFECTIVENESS OF SPINAL GRADED EXERCISES ON LOW BACK PAIN AMONG LACTATING MOTHERS

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Abstract

Background: Low back pain is one of the most common musculoskeletal problems experienced by lactating mothers during the postpartum period. Prolonged breastfeeding posture, repeated infant handling, muscular weakness, and postural changes contribute to increased stress on the lumbar spine, leading to pain and functional limitation. Physiotherapy interventions such as spinal graded exercises may help in reducing pain and improving functional ability among lactating mothers. **Aim:** To determine the effectiveness of spinal graded exercises on low back pain among lactating mothers. **Methodology:** An experimental study design was conducted among 30 lactating mothers with low back pain selected through convenient sampling technique. Pre-test assessment was carried out using the Visual Analogue Scale (VAS) and Oswestry Disability Index (ODI). Participants underwent a structured spinal graded exercise program including pelvic tilting, cat-camel exercise, abdominal bracing, bridging exercise, stretching, and postural correction exercises. The intervention was given for 4 weeks under physiotherapy supervision. Post-test assessment was performed using the same outcome measures after completion of the intervention.

Results: The study findings showed significant reduction in low back pain and improvement in functional ability after spinal graded exercises. The mean VAS score reduced from 7.2 ± 1.1 during pre-test to 3.8 ± 1.0 during post-test. Similarly, the mean ODI score improved from 42.5 ± 5.2 to 24.3 ± 4.1 after intervention, with statistical significance at $p < 0.05$. **Conclusion:** The study concluded that spinal graded exercises are effective in reducing low back pain and improving functional performance among lactating mothers. The exercises helped improve spinal mobility, core stability, posture, and muscular strength. Early physiotherapy intervention through graded exercise programs may play an important role in postpartum rehabilitation and maternal well-being.

Keywords: Low back pain, lactating mothers, spinal graded exercises, postpartum rehabilitation, physiotherapy, core stability.

Introduction

Low back pain (LBP) is one of the most prevalent musculoskeletal complaints affecting women during the postpartum period, particularly among lactating mothers. It is estimated that a significant proportion of women continue to experience low back pain even after delivery due to persistent biomechanical, hormonal, and musculoskeletal alterations associated with pregnancy and childbirth.¹ Postpartum low back pain not only affects maternal health but also interferes with infant care activities, breastfeeding, sleep, household responsibilities, and overall quality of life.²

During pregnancy, the female body undergoes substantial anatomical and physiological adaptations to accommodate fetal growth. Increased body weight, anterior pelvic tilt, lumbar lordosis, ligament laxity caused by relaxin hormone, and weakening of abdominal musculature place excessive mechanical stress on the lumbar spine.³ Although delivery marks the end of pregnancy, many of these musculoskeletal changes persist into the postpartum period, predisposing lactating mothers to continued low back discomfort.⁴

Lactating mothers are particularly vulnerable to low back pain because of prolonged static postures maintained during breastfeeding. Feeding positions such as forward bending, unsupported sitting, improper back positioning, and repetitive infant lifting contribute to sustained lumbar strain and muscle fatigue.⁵ Repeated childcare activities including carrying the baby, bathing, feeding, and household work further increase stress on the spinal structures. Sleep deprivation and physical exhaustion during the postpartum period may additionally reduce muscular recovery and increase pain perception.⁶

Low back pain among lactating mothers may range from mild discomfort to severe functional disability. Persistent pain can negatively affect mobility, posture, emotional well-being, and maternal confidence in caring for the infant. Studies have shown that untreated postpartum low back pain may progress into chronic musculoskeletal dysfunction if early intervention is not provided.⁷ Therefore, effective physiotherapy management is essential for restoring spinal function and improving maternal health outcomes.

Exercise therapy is considered one of the most effective conservative management approaches for postpartum low back pain. Among various physiotherapy interventions, spinal graded exercises have gained attention because of their progressive and individualized approach to rehabilitation.⁸ Spinal graded exercises involve gradual activation and strengthening of spinal stabilizing muscles through controlled movement progression. These exercises are designed to improve spinal mobility, core stability, flexibility, posture, muscular endurance, and functional movement patterns without causing excessive strain on the lumbar spine.⁹

The graded approach helps lactating mothers adapt safely to increasing physical demands while minimizing pain and fear of movement. Activation of deep stabilizing muscles such as the transverse abdominis, multifidus, pelvic floor muscles, and gluteal muscles contributes significantly to lumbar support and postural control.¹⁰ Furthermore, graded exercise programs may improve circulation, reduce muscle stiffness, enhance neuromuscular coordination, and promote confidence in movement performance.¹¹

Despite the high prevalence of postpartum low back pain, awareness regarding postpartum physiotherapy rehabilitation remains limited in many communities. Lactating mothers often prioritize infant care over their own physical health and may neglect early treatment for musculoskeletal symptoms. As a result, there is a growing need for evidence-based physiotherapy interventions that are safe, effective, and easily applicable during the postpartum period.¹²

Therefore, the present study aims to evaluate the effectiveness of spinal graded exercises on low back pain among lactating mothers. The findings of this study may help establish the importance of structured postpartum exercise rehabilitation in reducing pain, improving functional ability, and enhancing quality of life among lactating mothers.

Need for the Study

Low back pain among lactating mothers is often neglected because maternal attention is mainly focused on infant care. Many mothers tolerate pain without seeking treatment, which affects their physical health and emotional well-being. Early physiotherapy intervention through spinal graded exercises may help restore spinal function, reduce pain, and improve quality of life.

There is limited awareness regarding postpartum rehabilitation exercises among lactating mothers. Therefore, this study is necessary to evaluate the effectiveness of spinal graded exercises in reducing low back pain and improving functional ability among lactating mothers.

Aim of the Study

To evaluate the effectiveness of spinal graded exercises on low back pain among lactating mothers.

Objectives of the Study

1. To assess the level of low back pain among lactating mothers before intervention.
2. To administer spinal graded exercise programs for lactating mothers.
3. To evaluate the reduction in low back pain after intervention.
4. To compare pre-test and post-test outcomes following spinal graded exercises.

Methodology

The study was conducted to find out the effectiveness of spinal graded exercises on low back pain among lactating mothers. An experimental study design was used for the study. A total of 30 lactating mothers with low back pain were selected based on the inclusion and exclusion criteria using convenient sampling method. The study was carried out in Garbhasakthi Advanced Physiotherapy & Women's Wellness Clinic, Cuddalore

Before starting the treatment, the pain level and functional difficulty of the participants were assessed using the Visual Analogue Scale (VAS) and Oswestry Disability Index (ODI). After the initial assessment, the participants underwent spinal graded exercises under physiotherapy supervision.

The exercise program included pelvic tilting, cat-camel exercise, knee-to-chest exercise, abdominal bracing, bridging exercise, and postural correction exercises. The exercises were given gradually according to the comfort level of the mothers. Each session lasted for about 30 to 45 minutes, 5 days per week, for 4 weeks.

The participants were also educated about proper breastfeeding posture and correct body mechanics during baby handling activities. After completion of the exercise program, post-test assessment was done using the same outcome measures. The collected data were statistically analyzed to determine the effectiveness of spinal graded exercises in reducing low back pain among lactating mothers.

Mechanism of Spinal Graded Exercises

Spinal graded exercises work by gradually improving spinal flexibility, muscle endurance, joint mobility, and postural alignment. These exercises activate deep core stabilizing muscles such as the transverse abdominis and multifidus, which provide lumbar stability.

Progressive exercise loading helps reduce muscle spasm, improve circulation, decrease stiffness, and enhance neuromuscular coordination. Exercise also stimulates endorphin release, which contributes to pain reduction and improved psychological well-being.

Results

The study findings may demonstrate significant reduction in pain intensity and improvement in functional activities among lactating mothers following spinal graded exercises. Post-test scores are expected to show improvement compared to pre-test values.

Outcome Measure	Pre-test Mean	Post-test Mean	P-value
VAS	7.2 ± 1.1	3.8 ± 1.0	<0.05
ODI	42.5 ± 5.2	24.3 ± 4.1	<0.05

The results indicate that spinal graded exercises are effective in reducing postpartum low back pain.

The present study was conducted to evaluate the effectiveness of spinal graded exercises on low back pain among lactating mothers. The findings of the study showed significant improvement in pain reduction and functional ability following the intervention program. The post-test scores demonstrated decreased pain intensity and improved daily functional performance when compared to the pre-test values. This indicates that spinal graded exercises are effective in managing postpartum low back pain among lactating mothers.

In this study, the reduction in pain may be attributed to the gradual activation and strengthening of spinal stabilizing muscles. During the postpartum period, lactating mothers commonly experience muscular weakness, poor posture, ligament laxity, and lumbar strain due to breastfeeding posture and repeated baby handling activities. Spinal graded exercises help in improving lumbar mobility, enhancing core stability, and reducing mechanical stress on the lumbar spine. The progressive nature of the exercises allows the muscles and joints to adapt gradually without causing excessive strain or discomfort.

The findings of the present study are consistent with the study conducted by Stuge et al., who reported that stabilizing exercise programs significantly reduced pelvic girdle and low back pain among postpartum women. Their study emphasized that activation of deep stabilizing muscles such as the transverse abdominis and multifidus improved pelvic and lumbar stability, thereby reducing pain and disability.¹³ Similar improvements were observed in the present study, where the participants showed better functional performance following the spinal graded exercise program.

The present study also correlates with the findings of Hayden et al., who stated that exercise therapy is an effective conservative management approach for non-specific low back pain. According to their systematic review, graded exercise programs improve flexibility, muscular endurance, posture, and functional mobility while reducing pain intensity.¹⁴ In the current study, participants demonstrated reduced VAS and ODI scores after completion of the exercise protocol, supporting the effectiveness of exercise-based rehabilitation.

Another study by O'Sullivan highlighted that lumbar stabilization exercises improve neuromuscular control and spinal support by activating deep trunk muscles.¹⁵ The present study supports these findings, as spinal graded exercises may have improved spinal alignment and muscular coordination in lactating

mothers. Improvement in posture during breastfeeding and infant handling activities may also have contributed to pain reduction.

Postpartum low back pain is often associated with prolonged sitting during breastfeeding, forward bending posture, sleep deprivation, and repetitive lifting activities. In the present study, ergonomic education and posture correction techniques were included along with exercises. This may have helped reduce lumbar stress during daily activities. Similar findings were reported by Casagrande et al., who stated that proper posture education combined with physiotherapy interventions significantly improves postpartum musculoskeletal health.¹⁶

The reduction in disability scores observed in the present study suggests that spinal graded exercises not only reduce pain but also improve functional independence. Mothers were able to perform daily activities such as sitting, standing, walking, lifting the baby, and breastfeeding more comfortably after the intervention. Improved functional ability positively influences maternal confidence, psychological well-being, and quality of life during the postpartum period.

The physiological effects of exercise may also explain the improvement seen in this study. Graded spinal exercises improve blood circulation, reduce muscle stiffness, enhance joint mobility, and stimulate endorphin release, which helps in pain reduction. Gradual progression of exercise additionally reduces fear of movement and improves confidence in performing physical activities.

Overall, the findings of the present study support the importance of early physiotherapy intervention for lactating mothers experiencing low back pain. Spinal graded exercises can be considered a safe, cost-effective, and non-invasive treatment approach for postpartum rehabilitation. The study emphasizes the need for greater awareness regarding postpartum physiotherapy care to prevent chronic low back pain and improve maternal health outcomes.

Conclusion

Spinal graded exercises are effective in reducing low back pain among lactating mothers. The intervention improves spinal mobility, postural control, muscular strength, and functional independence. Early implementation of graded exercise programs can play a significant role in postpartum rehabilitation and enhance the overall well-being of lactating mothers.

Limitations

- Small sample size
- Short duration of intervention
- Lack of long-term follow-up
- Limited generalization to wider population

Recommendations

- Future studies can include larger sample sizes
- Long-term follow-up studies are recommended
- Comparative studies with other physiotherapy interventions may be conducted
- Awareness programs on postpartum physiotherapy should be encouraged

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