

Research Article

Effectiveness of Maitland Grade I and II Spinal Mobilization for Chronic Low Back Pain

Komal Mushtaq¹, Shoaib Waqas^{2*}, Hafiz Muhammad Asim³

¹Physiotherapist, DHQ, Chakwal; ²Senior Lecturer at Lahore Medical & Dental College Lahore; ³Dean, LCPT Lahore Medical & Dental College Lahore.

Abstract | Background: Chronic low back pain (CLBP) can be managed by multidisciplinary team approach especially physiotherapy and rehabilitation. In this study, effectiveness of spinal manual therapy (maitland grade I and II mobilization) for CLBP management was assessed.

Methods: All subjects in the study were provided maitland grade I and II spinal mobilization for 20 minutes each. A similar treatment frequency was applied and consisted on three sessions per week for 2 continuous weeks. Numeric pain rating scale (NPRS) was applied to assess the pain severity levels before treatment and after treatment. Data were normally distributed and therefore, change in pain intensity was measured by “t” test using SPSS version 23.0.

Results: The calculated mean pain score on NPRS before treatment was 3.90 (standard deviation, 0.3038) and after treatment it was 1.65 (standard deviation, 0.8638). The calculated t-value was 12.08 (p value=0.000).

Conclusion: These results clearly demonstrate that the maitland G1 and G2 spinal mobilization can be exploited as an effective treatment choice for chronic low back pain.

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***Correspondence |** Dr. Shoaib Waqas, Senior Lecturer at Lahore Medical & Dental College Lahore; **Email:** shoaibphysio@hotmail.com

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Keywords | Spinal mobilization, Chronic low back pain, Numeric pain rating scale.

Introduction

Low back pain is commonly a musculoskeletal entity. Therefore, the root cause is stress and the strain on the bones, muscles and ligaments of the spinal column⁽¹⁾. In lower spinal area, the pain is being felt and is known as low back pain, and according to the causative agent it can be either soft or severe^(2,3). The pain lasting for more than 7-12 weeks is the chronic low back pain. Beyond the estimated healing duration, this pain may last longer and the elementary pathological causes might remain unnoticed. According to some suggestions, the repeating back pain is designated as chronic pain by which an individual is affected by a long period of time again and again⁽⁴⁾.

Low back pain affects enormously upon the activity of conventional population. About 7% of young population consult for this ailment within the entire one year⁽⁵⁾. Among several conditions, the low back pain is highly prevalent condition^(4,6), and among the whole world its administration comprises a high amount e.g. prevalence only in USA is 8 to 56%⁽⁷⁾.

Low back pain is a variously dispensed disease with aetiologies that are miscellaneous. Physical factors are involved in various risk factors (vibration, frequent lifting, heavy physical stress, and postural strains are expected to cause low back pain, sciatica and disc degeneration), social demographic characteristics, habits and psychosocial factors. Besides these, there are

other work posture irregularities (8-11).

A study was conducted in 2012 by Bialosky et al, in which techniques of spinal manipulative therapy (SMT) were used in order to alleviate the pain in dysfunctional vertebrae or to recover the movement. The SMT techniques make therapist expert for self-clinical decision making without the advice of osteopathic and orthopaedic physician (12).

Currently, there is a limited consensus on efficacy and role of spinal manipulation in chronic lumbago. In 2007, Chou and Huffman have conducted systematic reviews which report positive role of spinal manual therapy while latterly in 2008 by Bronfort et al, Cochrane review found spinal manual therapy equally effective as that of other interventions (13,14).

The results are supporting effective role spinal manual therapy may be due to more duration and dosage of treatment that is not reported in aforementioned systematic reviews and meta-analysis (14). Therefore, it is important to figure out the optimal dosage required for treatment to be carried out. In 1991, Shekelle et al have conducted a study on duration, frequency and dosage of spinal manual therapy and showed that it was based on clinicians' expertise and opinion (15).

One of the complications in the country was individualized manual therapy with variable outcomes. Therefore, investigations are required to propose a well-articulated and thoroughly underpinned consensus therapy. The rationale of the current study is to find out the effectiveness of maitland grade I and II spinal mobilization for chronic low back pain to minimize the subject's pain and improve their quality of life.

Material and Methods

This is a quasi-experimental study design and simple random sampling technique (lottery method) was employed. Data were collected from a private hospital in Lahore. Written informed consent was obtained from every studied subject. All subjects received mait-

land grade I and II spinal mobilization for 20 minutes which remained the same throughout the study. The treatment was repeated for three sessions per week for 2 weeks. NPRS was used for assessing the pain severity level before treatment and after treatment. All the information was kept confidential. The entry and analysis of data were performed through SPSS version 23.0. The quantitative variables were presented in the form of mean and standard deviation, while percentages for qualitative variables. The data were normally distributed. Change in pain intensity on NPRS pre- and post-treatment were measured by "t" test using SPSS version 23.0.

Results

The calculated mean value before treatment in context of NPRS was 3.90 (SD =0.3038), however, by conducting three treatment sessions, the mean on NPRS was 1.65 (SD=0.8638). After completion of treatment by performing six sessions, the mean value on NPRS was 1.22 (SD = 0.4184). The calculated 't' value was 12.08 when means were compared at start and termination of treatment (p value=0.000).

Table 1: Demographic characteristics of the under-study population

Variables	Statistics	
Age (M+SD)	Mean age	45.8 years
	SD	9.668
Gender	Males	58%
	Females	42%
Marital status	Married	78%
	Unmarried	22%

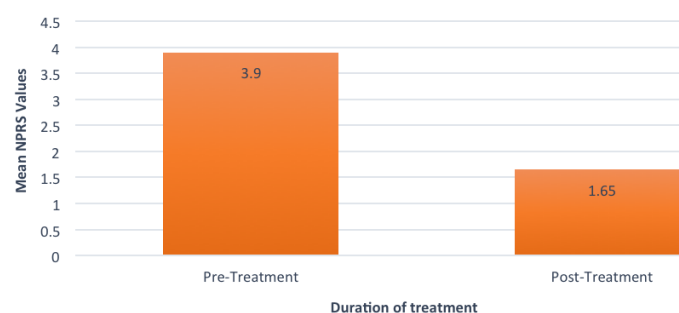


Figure 1: Comparison of Numeric pain rating scale before and after treatment

Table 2: Pre-therapy and post-therapy comparison of means (t-test) in pain scores.

	t	df	Sig. (2-tailed)	Mean Differences	95% Confidence Interval of the Difference	
					Lower	Upper
Pre-therapy	81.185	39	.000	3.90000	3.8028	3.9972
Post-therapy	12.081	39	.000	1.65000	1.3737	1.9263

Discussions

The current study showed that there was a decrease in pain and discomfort before and after spinal manual therapy with results of mean score on NPRS pre-treatment 3.90 (SD=0.3038), and post-treatment 1.65 (SD=0.8638). All the patients received a remarked relief in discomfort by taking SMT. This was in accordance with the study conducted in 2005 by JD Childs et al, on improvement responses of the numeric pain rating scale in subjects having CLBP⁽¹⁶⁾.

Results of this study were similar to previous studies where authors highlighted the effectiveness of spinal manual therapy in chronic lower back pain. In addition, this study also adds to the findings for effectiveness of maitland grade I and II spinal mobilization for lowering CLBP. A systemic review of randomized clinical trials conducted by BW Koes et al, included 36 randomized clinical trials showing comparison between other therapies and spinal manipulative therapies and clearly described the benefits of maitland mobilization therapy. Most of the research studies showed encouraging results for mobilization therapy and in strong agreement with our findings^(17,18).

Future studies are warranted using larger sample size, with longer follow up and subjects of different age groups or with specific occupation by using different manual therapy procedures.

Conclusion

The current study concluded that maitland G1 and G2 spinal mobilization was an effective treatment choice for chronic low back pain.

Author's Contribution

Komal Mushtaq: Did all the research and wrote the article.

Shoaib Waqas: Supervised the reserach.

Hafiz Muhammad Asim: Co-supervised the research.

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