

EFFECTIVENESS OF CONVENTIONAL PHYSICAL THERAPY VERSUS MCKENZIE EXERCISES IN PATIENTS WITH CHRONIC NON-SPECIFIC LOW BACK PAIN.

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ABSTRACT:

Background:

Low Back Pain without any specific cause and at least with duration of 12 weeks is called Chronic Non-Specific LBP and is a most common health problem and globally well known for creating financial burden on patients. It is defined as non-radiating and non-specific low back pain associated with no neurological symptoms. The pain is limited to the lumbar spine and their Para spinal muscles without pathoanatomical causes and no pain referred into the leg.

Objective:

The objective of this study is reduction in pain intensity, decrease in disability, and increase in Lumber in patients with chronic non-specific low back pain.

Study design; It was a Comparative study.

Methodology:

A Comparative Study was conducted at THQ Hospital Darya Khan from March to June 2023 with sample size of 132 and Non Probability Consecutive sampling technique was used. Then patients were divided into two groups by using opaque envelopes. Group- 1 patients were treated by McKenzie exercises. Group-2 patients were treated by Conventional Physical Therapy. VAS was used for pain, OLBPI for disability and for Lumber Flexion's-value of 0.05 taken as a significant.

Result:

The results of our study shows that there were statistically significant differences in Age, Gender, Marital status, Education, Active life styles, Use of Medications, causes of LBP, Recent onset of back pain, pain during Movement and types of mechanical diagnostic syndrome. Visual Analogue Scale for pain intensity, Oswestry Low back Disability Index for disability and Lumber flexion by inclinometer between McKenzie Group and Conventional Physical Therapy Groups because p value <0.05 . The p -value is less than 0.05 for VAS, OLBPDI and lumber flexion after 2 months Because of this; we can also conclude that there is also a statistically significant difference between VAS, OLBPDI scale and lumber flexion for the McKenzie Group and Conventional Physical Therapy group.

Conclusion: Mckenzie Teachnique is better than conventional Physical Therapy to decrease pain, disability and increase Lumber Flexion.

Keywords: Mckenzie Teachnique, Conventional Physical Therapy, Chronic Non-Specific LBP.

INTRODUCTION

Low Back Pain without any specific cause and at least with duration of 12 weeks is called Chronic Non-Specific low back pain is a most common health problem¹ and globally well known for creating financial burden on patients. It is defined as non-radiating and non-specific low back pain associated with no neurological symptoms.² The pain is limited to the lumbar spine and their Para spinal muscles without pathoanatomical causes and no pain referred into the leg.³

LBP is called non-specific if there is no specific and clear causal correlation between the radiological findings, symptoms and physical findings.⁴ Non-specific chronic low back pain caused by improper or poor posture, fragility of physiological structural in lumbar area and poor body mechanics which can be called a living functional impairment.⁵

LBP is a most common and disabling musculoskeletal problem worldwide. Approximately 80% will experience LBP during their lifetime, and over 80% of these patients will report recurring episodes of LBP. In both developing and developed countries.⁶ LBP is the most common cause for many years of disability and about 80% of people have more than one episode of LBP.⁷ Furthermore, low back pain is more prevalent in office workers e.g. banker or computer workers affects more male workers than female in Pakistan.⁷

Prolonged sitting may be considered a most common cause of musculoskeletal pain among office workers, who experienced LBP.⁸ A study shows prevalence of Low Back Pain among University office workers was 37%, which is equivalent to 1/3 population of office workers and in same time 12.1% in another study.⁹ 60% of students experienced LBP due to prolonged sitting and their physical fitness¹⁰, 57.8% when sitting more than 3 hours in a day and 26.7% as compared to others who sit less than 3 hours in a day.¹¹ Common causes of Low Back Pain are Trauma, Muscle spasm, heavy weight lifting's, frequent weight lifting, obesity, postural dysfunction, infections, fibromyalgia, sedentary life style, spinal stenosis and spondylolisthesis.¹² 80-85% of population in their life can experience issues of back pain and every year 10% of adults consult their physicians.¹³ According to the USA National Center of Health Statistics, almost 15% of new patients admitted for treatment in hospital suffered with LBP, accounts 13 million services in patients with low back pain.¹⁴ Almost 60% of people suffering from chronic LBP did not think about their recovery within a duration of 1 year from the beginning of their chronic low back pain symptoms with moderate pain and disability over a period of time.¹⁵ Therefore, various patients become common users of health services for treatments to reduce the severity of pain related symptoms.¹⁶

Moreover, proper assessment and evaluation of the patients must be carried out due to different presentation of the low back pain. Therefore, clinicians should understand the importance of common red flags of low back pain in adults and other so that a highly effective treatment can be devised for low back pain.¹⁷ This must include a thorough history, observations, physical assessment, special musculoskeletal tests, radiological imaging and neurological testing to identify the radicular symptom and rule out major neurological conditions.¹⁸

Currently, several treatments are available to manage chronic low back pain. These include mobilization of lumbar spine, stretching, strengthening exercises, endurance training, pain management through pain relieving medications and electrotherapy(TENS,IFT),pelvic floor strengthening, core stabilization, postural correction surgical treatment e.g.laminectomy, regular walking, patient counseling and family education.¹⁹

One of the most effective method to manage chronic non-specific low back pain is McKenzie method.²⁰ This method is also known as “Mechanical Diagnosis and Therapy” MDT and classically renowned as a “classification system” for accurate diagnosis and to treat a various musculoskeletal conditions. These can be neck pain, extremity pain and lower back pain.²¹

MATERIAL AND METHODS

A Comparative Study was conducted at THQ Hospital Darya Khan from March to June 2023 with sample size of 132 and Non Probability Consecutive sampling technique was used. After getting approval from Times Institute, Multan and written permission from THQ Hospital Darya khan district Bhakkar Data was collected from patients. Data collection was done by self-structured pre-designed questionnaire. All patients, who meet the selection criteria, were enrolled in this study. Informed consent was taken from patients stating about the safety of the study, their privacy, and their right to withdraw from the study. Demographic details (name, age, sex,) were noted along with the necessary medical history. Then patients were divided into two groups by using opaque envelopes. Group- 1 patients were treated by McKenzie exercises. Group-2 patients were treated by Conventional Physical Therapy.

Conventional Physical Therapy includes ROM, Isometrics, Stretching's, strengthening and pelvic rotation exercises with 1 set of 10 repetitions of each exercise were performed in every treatment session with frequency of 3 sessions per week for 1 month. After 1 month patient was reassessed and post treatment progress were noted. With 1 set of 10 repetitions of each McKenzie exercises were performed in every treatment session with frequency of 3 sessions per week for 1 month. After 1 month patient was reassessed and post treatment progress was noted.

The procedure was done by the Researcher himself and all the information regarding the demographic data was gathered by using a pre-designed Performa. Improvement regarding the outcomes of the treatment was measured using Visual Analogue Scale for pain, Oswestry low back Disability Index for disability and inclinometer was used for ROM of Trunk. Decrease in pain, decrease in disability and increase in Trunk (Lumber) flexion were used as an outcome variables.

Analysis was done by using SPSS 22.Statistical techniques such as frequency tables, pie chart, bar chart and cross-tabulation were used to present data. Quantitative variables were presented by using mean \pm SD. Independent sample t test between 2 groups. Chi-square test was applied to see the correlation and odds ratio was also used for determination of risk factors. P-value <0.05 was taken as significant.

RESULTS

Table 4.1 Comparisons of General Data between McKenzie and Conventional Physical Therapy Group

Sr. No	Variables	Conventional Physical Therapy n=66	McKenzie Method n=66
1	Gender		
	Male	39(59.1%)	43(65.2%)
	Female	27(40.9%)	23(34.8%)
2	Age (y)		
	21-30	24(36.36%)	14(21.21%)
	31-40	24(36.36)	32(48.48%)
	41-45	18(27.27%)	20(30.30%)
3	Pain in Movement		
	Flexion	57(86.36%)	54(81.81%)
	Extension	8(12.1%)	6(9.09%)
	Both Movements	1(1.51%)	6(9.09%)
4	Recent Pain Episode		
	Yes	36(54.5%)	34(51.5%)
	No	30(45.5%)	32(48.5%)

Table 4.2 Comparisons between McKenzie and Conventional Physical Therapy

Sr. No	Variables	Conventional Physical Therapy	McKenzie Method
1	Diagnostic Syndrome		
	Derangement Syndrome	44(66.66%)	45(68.18%)
	Dysfunction syndrome	12(18.18%)	11(16.66%)
	Postural syndrome	7(10.60%)	8(12.12%)
	Other	3(4.54%)	2(3.03%)
2	Causes of LBP		
	Trauma	15(22.72%)	3(4.54%)
	Prolong Sitting	17(25.75%)	13(19.69%)
	Weight Lifting	34(51.51%)	50(75.75%)

Table 4.3 Comparisons of Outcome Variables between McKenzie and Conventional Physical Therapy Group

Sr. No	Variables	Mean \pm SD		P-Value
		Conventional Physical Therapy	McKenzie Method	
1	Pain intensity VAS (0–10)			
	Pre Treatment	2.82 \pm .399	2.82 \pm .493	1.000
	Mid Treatment (1 month)	2.52 \pm .504	1.98 \pm .123	0.000
	Post Treatment (2 month)	2.27 \pm .542	1.05 \pm .210	0.000
2	Disability OLBPDI(0–50)			
	Pre Treatment	3.76 \pm .688	3.53 \pm .533	0.031
	Mid Treatment (1 month)	3.05 \pm .567	2.03 \pm .391	0.000
	Post Treatment (2 month)	2.83 \pm .938	1.17 \pm .444	0.000
3	Lumbar Flexion(ROM)			
	Pre Treatment	1.92 \pm .563	1.05 \pm .210	.593
	Mid Treatment (1 month)	1.35 \pm .511	2.00 \pm .000	0.000
	Post Treatment (2 month)	2.08 \pm .364	2.92 \pm .267	0.000

Table 4.3 shows that p-value is 0.000 for visual analogue scale (VAS Score) after 1 and 2 month and this value is less than 0.05. Because of this, we can conclude that there is a statistically significant difference between the mean number of Visual Analogue scale for the McKenzie Group and Conventional Physical Therapy group.

Table 4.3 shows that p-value is 0.000 for OLBPDI scale after 1 month and 2 month and this value is less than 0.05. Because of this, we can conclude that there is a statistically

significant difference between the mean number of OLBPDI scale for the McKenzie Group and Conventional Physical Therapy group

Table 4.3 shows that p-value is 0.000 for Lumbar Flexion after 1 month and 2 month this value is less than 0.05. Because of this, we can conclude that there is a statistically significant difference between the mean number of Lumbar Flexion for the McKenzie Group and Conventional Physical Therapy group.

DISCUSSION:

The results of our study shows that there were statistically significant differences in Age, Gender, Marital status, Education, Active life styles, Use of Medications, causes of LBP, Recent onset of back pain, pain during Movement and types of mechanical diagnostic syndrome. Visual Analogue Scale for pain intensity, Oswestry Low back Disability Index for disability and Lumber flexion by inclinometer between McKenzie Group and Conventional Physical Therapy Groups. The results also showed that high educational level and Use of Medications were independent protective factors for chronic non-specific LBP. However, Overall educational level of patients in both groups were lower because patients with lower level of education were not realized the effects of prolong sittings and frequent heavy weight lifting's that cause Low back pain issues in these patients. Recent Episode of Back pain was aggravating factors for chronic non-specific LBP. Age is also an aggravating factor because with increasing age the chances of low back pain increasing due to decreasing strengthening of the body. Male patients were different jobs that required frequently weight lifting or prolong sittings experienced more low back pain as compared to females.

A Randomized controlled trial's goal was to assess how well the McKenzie and Conventional Physical Therapy approaches worked for treating patients with non-specific chronic low back pain. We noticed a decline in both pain intensity and disability during the 1-month follow-up in both groups. At 3 and 6 months after randomization, for both primary and secondary outcomes, the majority of the outcomes gains shown at short-term follow-up were still present(Garcia et al., 2013). At the 1-month follow-up, participants in the McKenzie group had improved more in terms of disability than those in the Conventional Physical Therapy group, but not in terms of pain intensity. Only accurate estimations of the treatment effects were reported in this study.

A 20% improvement in both pain and disability is considered to be a minimally clinically relevant difference.²²The difference in disability found in this study was questionable clinical significance due to its small size. But according to the analysis of the number needed to treat for disability, out of every four patients using the McKenzie technique for treatment, one will see at least a 5-point improvement in their disability score on the Roland Morris disability questionnaire (RMDQ), which is deemed clinically significant.²³ Finally, the McKenzie group had a substantially more number of patients (n = 39) than the conventional physical therapy group(n = 22), which is also clinically significant, who obtained the smallest clinically noteworthy difference in terms of disability.²⁴

By demonstrating an improvement in lumbar range of motion and a decrease in pain intensity, the current study provided additional support for this systematic review. McKenzie exercises therefore have the ability to reduce pain quickly. For an improvement in active lumbar range of motion, more therapy sessions are necessary.

According to research by Hosseinifar et al. from 2013, both groups experienced less discomfort after 18 sessions, however only the stabilization training group saw improvements in disability scores and muscular strength.²⁵

McKenzie exercises include trunk flexion, extension, and lateral displacements even though they are regarded as extension exercises. In patients with non-specific persistent low back pain, McKenzie exercises are shown to shorten pain episodes and prolong functional gains. In conclusion, McKenzie therapy is superior to passive approaches in the treatment of low back pain.²⁶ According to Udermann et al. (2014), patients with chronic low back pain showed a favorable relationship between disability and psychosocial characteristics while using the McKenzie approach.¹⁴ According to a research by Petersen et al., in patients with chronic low back pain, the McKenzie approach improved pain and disability after two months. According to the study, McKenzie training helps patients with persistent low back pain by reducing pain, improving spine movement, rehabilitating, boosting soft tissue endurance, and regaining flexibility. According to Petersen et al. an 8-month study contrasting Pilates and McKenzie exercises found no difference between the treatments.²⁷

According to various studies, implementation therapy using the conventional physical therapy and McKenzie methods can have a positive impact on patients who have chronic LBP.²⁸ According to Clare (2004), treatment McKenzie's workout results in lower subtraction patient lower back than conventional physical therapy. In addition, McKenzie's exercise will alleviate discomfort by relieving pressure on the annulus posterior fibrosus by movement extension.²¹

For upcoming clinical studies, this pilot study evaluated the effects of McKenzie exercise program (MEP) and conventional physical therapy program (CPP) on central sensitization (CS) among chronic nonspecific low back pain (CNSLBP) patients with or without CS. In our investigation, patients assigned to the MEP group improved more than those assigned to the CPP group in terms of pain and disability following treatment, but not in terms of pain intensity. For the disability and pain scores in their study, Garcia et al. found comparable results.²⁴

According to Sterling et al.'s pilot RCT, lateral glide performed to the cervical spine as manual therapy may be useful in lowering sensory hyper excitability (i.e., CS) in individuals with chronic Whiplash condition.²⁹ Manual therapy's clinical value as a method of treatment for desensitizing the CNS is, however, limited by the short-lived nature of the central analgesic effects of the therapy. It is intriguing to think that regular manual treatment sessions can cause descending anti-nociceptive circuits to become permanently activated. As a patient-operated manual therapy in our investigation, McKenzie exercise may help to explain its effects on CS on the line of activation of descending anti nociceptive pathways.²⁹

CONCLUSION:

Gender, Active life styles, Use of Medications and Recent onset of back pain are associated with more chances of non-specific Chronic LBP .The p-value is less than 0.05 for VAS, OLBPDI and lumber flexion after 2 months Because of this; we can also conclude that there is also a statistically significant difference between VAS, OLBPDI

scale and lumber flexion for the McKenzie Group and Conventional Physical Therapy group.

Our aim was to assess how well the McKenzie and Conventional Physical Therapy approaches worked for treating patients with non-specific chronic low back pain. We noticed a more decline in both pain intensity and disability during the 1-month follow-up in McKenzie as compared to Conventional Physical Therapy. At 2 months after randomization, for both primary and secondary outcomes, the majority of the outcomes gains shown at short-term follow-up were still present. At the 1-month follow-up, participants in the McKenzie group had improved more in terms of pain and disability than those in the Conventional Physical Therapy group.

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Limitation;Single center study with small sample size and financial constraints.

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