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COMPARISON OF MCKENZIE EXERCISE PROGRAM VERSUS ROUTINE PHYSICAL THERAPY MANAGEMENT ON PAIN, RANGE OF MOTION AND FUNCTION WITH CHRONIC MECHANICAL NECK PAIN

Original Research

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Conflict of Interest: None
Grant Support & Financial Support: None
Date Submitted: 07-10-24
Date Published: 21-10-24

Abstract

Background: Neck pain is a key public health issue that affects the human beings with reduction productivity and quality of life and produced significant socioeconomic burden on society. It is necessary to raise public awareness about risk factors and preventive treatments of chronic neck pain. Neck pain is fairly common and has a significant impact on a person's quality of life. According to Statistics, neck issues also contribute significantly to occupational illness and disability. This study aims to assess the frequency of neck pain, decreased range of motion, and disability among chronic neck pain with the goal of raising awareness about the risks and promoting preventative measures, such as ergonomic design, postural re- education, and regular exercise.

Objective: The aim of this study is to Comparison of McKenzie Exercise Program Versus Routine Physical Therapy Management on Pain, Range of Motion and Function with Chronic Mechanical Neck Pain.

Methods: A randomized clinical trial study was conducted on 50 patients with chronic neck pain. Subjects were randomly divided into two interventional groups where group A received Routine physical therapy (joint mobilization, Hot pack and home exercise program) and McKenzie exercise group B received Routine physical therapy for total duration 12 week. Outcome measure such as pain, function and range of motion will be assessed by NPRS, NDI and Goniometer respectively. Assessment will be done at 4^{th}, 6^{th} and 12^{th} week.

Results: 50 participants with mean age 46.2±5.9 years while BMI of participant with standard deviation was 21.4±2.6. Normality of data which was analyzed by Shapiro-Walk test comparing variables such as NPRS, NDI and ROM. For NPRS p value was <0.05 which showed that data was not normally distributed and non-parametric test were used for this variable to show difference like Fried Man test for within group analysis and Man Whitney test for between group analysis. But for NDI and ROM p value was >0.05 which showed that data was normally distributed and parametric tests such as Repeated measure ANOVA for within group analysis and Mixed Model ANOVA for between group analysis were used.

Conclusion: It is concluded that both groups are equally effective in management of chronic neck pain based on P > 0.05 between group analysis and within group analysis But McKenzie exercises have a great effect on pain relief, Improvement in range of motion and Disability.

Key words: Chronic Neck Pain, Goniometer, McKenzie Exercise Program, Mechanical Neck Pain, Numeric Pain Rating Scale, Pain Management, Physical Therapy, Randomized Clinical Trial, Range of Motion, Rehabilitation, Routine Physical Therapy, Treatment Efficacy.

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INTRODUCTION

Neck pain is a key public health issue that affects human beings with a reduction in productivity and quality of life and produces significant socioeconomic burden on society. It is necessary to raise public awareness about risk factors and preventive treatments of chronic neck pain. Neck pain is common and has a significant impact on a person's quality of life. According to Statistics, neck issues also contribute significantly to occupational illness and disability (2). The etiology of Neck pain is multifactorial that sedentary lifestyle, office workers, frequent sleep problems, obesity, poor posture, anxiety, depression, increase use of computers, changes of work type and work-related emotional exhaustion are significant risk factors for Neck pain.

Isometric exercises and strength training can help relieve neck pain, which is linked to the cervical spine's weak muscles, such as the deep and anterior neck flexors. Psychosocial dysfunctions and sedentary lifestyle are commonly associated with chronic Neck pain. An individual may avoid work due to Neck pain which may result in decreased muscle loading, leading to muscle weakness. Neck muscle weakness has been recognized as a contributing factor for Neck pain. Decreased neck range of movement (ROM), neck muscle strength, neck muscle endurance (NME) and muscle thickness are frequent findings in people having Neck pain (3). The most common cause of neck pain is poor posture, which puts too much strain on the ligaments and soft tissues in the cervical area. As a result, the cervical spine's structure and soft tissue change, decreasing its function and bringing on pain. The McKenzie exercise uses mobilization, manipulation, patient education, and self-therapeutic exercise as part of its treatment plan.

In 2022, author “A. Abdel-Aziem et al”, done a study which is a randomized control trial that examined “The effect of McKenzie exercise VS neck flexors and scapulothoracic exercises in patient with chronic neck pain”, this study investigated McKenzie exercise against deep neck flexor combine with Scapulothoracic exercises on improving pain severity, cervical mobility and functional disability. This study showed a significant decrease in neck pain severity and disability and significant increase in neck flexion\extension and lateral rotation of McKenzie exercise group as compared to deep neck flexor group (1).

A study conducted by “Tarek Ammar “it was a two-group pretest and posttest design study that was conducted in 2018, He examined the comparison of McKenzie exercise and stabilization exercise in mechanical neck disability patients. The outcome measure of this study was pain severity, neck disability and range of motion. After conduction this study he concluded that both programs are equally effective in improving pain, disability and range of motion (4). In 2019 A study was conducted to determine the effects of McKenzie exercises in chronic neck pain patients. The purpose of this study was to provide clinical data to reduce pain and improve functions by performing McKenzie exercise or passive stretching exercises in chronic neck patients. Sixteen chronic neck pain patients were selected and divided into McKenzie group and stretching group. The time for one exercise was 30 min. He concluded that both showed significant effects. McKenzie exercises delayed the replace of the fast twitch fibers that helps to improve muscle fatigue that increases the muscle efficiency (5). A study on Randomized trial of two physiotherapy interventions for primary care neck and back pain patients, McKenzie versus brief physiotherapy pain management by J Klaber on 2017.He concluded that McKenzie exercises have good results for improvement in pain (6).

MATERIAL AND METHODS

The aim of this study was to compare the McKenzie Exercise Program with routine physical therapy management in terms of its effects on pain, range of motion, and function in individuals suffering from chronic mechanical pain. A randomized clinical trial was conducted with a total sample size of 50 participants, calculated using the Epi tool based on Neck Disability Index (NDI) values. This sample size includes an additional 10% attrition rate to account for potential dropouts. The study took place at Services Hospital in Lahore, where data were collected following ethical approval and informed consent. Participants were recruited based on strict inclusion and exclusion criteria, ensuring the study’s relevance and applicability to the targeted population. An independent assessor was employed to maintain the blinding of the study, enhancing the credibility of the findings.

The primary measures included the Numeric Pain Rating Scale (NPRS), the NDI, and a goniometer for measuring the range of motion (ROM) of the cervical spine. The NPRS, an 11-point scale, was used to quantify pain severity due to its high reliability and validity, with scores ranging from 0 to 10 representing the least to the most severe pain respectively (7). The NDI, a functional questionnaire designed to evaluate disability in daily activities, consists of 10 questions, with the score converted into a percentage where higher scores

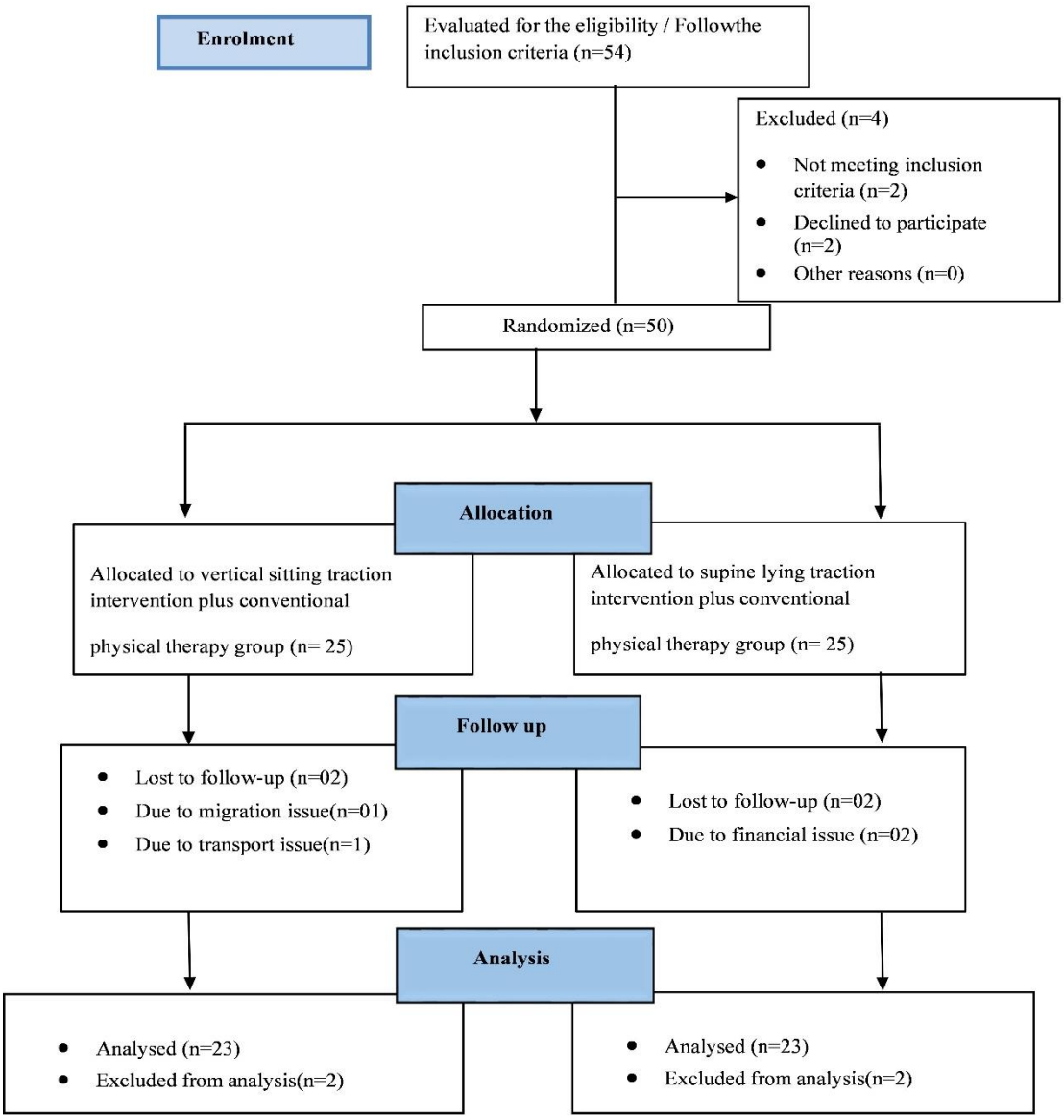
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indicate greater disability (4). The goniometer, specifically the universal type, was used to measure joint ROM with high inter-observer reliability (0.99) and validity (0.97) (8).

Subjects were randomly divided into two groups through a lottery method. Group A (n=25) received the McKenzie exercise program along with routine physical therapy, including the use of hot packs and Transcutaneous Electrical Nerve Stimulation (TENS) for a duration of 12 weeks. These sessions were conducted three times a week, lasting 30 minutes each, totaling 36 treatments over the 12-week period. The McKenzie exercises were performed with 10 repetitions per session. The initial phase (Weeks 1–3) involved McKenzie exercises combined with hot packs and TENS, performed with 8 repetitions. During Weeks 4–6, neck retraction exercises with cervical traction were added, and the same protocol continued from Week 6 to Week 12.

Group B (n=25), serving as the control group, received only routine physical therapy that included isometric exercises, neck stretches, hot packs, and TENS. Treatments were administered from the 3rd, 6th, and 12th weeks, with sessions scheduled three times a week for 20 minutes each. In the initial phase (Weeks 1–3), this group underwent hot pack application, neck isometrics, TENS, and neck stretches for 3 sets per session. The protocol intensified in Weeks 4–6 with 5 repetitions of each exercise and further increased to 10 repetitions per session from Weeks 7–12 (9).

Data was analyzed using SPSS version 28, with an initial analysis conducted after six weeks of data collection and a second analysis performed at the conclusion of the 12-week period. The normality of the data was assessed using the Shapiro-Wilk Test; if the p-value exceeded 0.05, parametric tests were applied, indicating normally distributed data. Conversely, if the p-value was below 0.05, non-parametric tests were used to ensure appropriate analysis. This study received approval from the Institutional Review Board (REC/RCR & AHS/23/0104, Dated: 02/01/2023) of Riphah International University, Lahore, Pakistan, and was prospectively registered in the WHO-Iranian registry of clinical trials (IRCT20190717044238N8, Dated: 2023/04/03). All participants provided informed written consent. All methods were carried out following the relevant guidelines and regulations to ensure ethical compliance and participant safety.



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RESULTS

Table 1 Mann-Whitney test for comparison of NPRS between two groups

	Type of treatment	Median	Interquartile Range	Mean Rank	Significance value
Baseline NPRS score	Routine physical therapy	6.0	1.25	25.24	.897
	McKenzie	6.0	1.25	25.76	
4th week NPRS score	Routine physical therapy	5.0	3.0	29.86	.030
	McKenzie	5.0	3.0	21.16	
6th week NPRS score	Routine physical therapy	5.0	2.0	33.06	.000
	McKenzie	5.0	2.0	17.94	
12th week NPRS score	Routine physical therapy	4.0	3.0	35.88	.000
	McKenzie	4.0	3.0	15.12	

Table 1 demonstrates the NPRS scoring at four different timings. The data is not normally distributed thus non-parametric tests were applied. Mann Whitney test was applied where mean ranks for Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 25.2, 29.8, 33.06, 35.8 respectively and for McKenzie exercise group at baseline, 6th week and 12th week were 25.7, 21.1, 17.9 and 15.1 respectively and significance value was $p \geq 0.05$. The McKenzie group has shown a reduction in pain.

Table 2 NDI within group and between group comparisons of NDI Score (repeated Measures ANOVA)

Descriptive Statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance value
Neck Disability Index	Routine physical therapy	21.9	6.5	208.7	0.000
	McKenzie	22.2	5.1		
Neck Disability Index after 4 weeks	Routine physical therapy	18.5	5.7		
	McKenzie	16.4	4.1		
Neck Disability Index 6 week	Routine physical therapy	14.3	4.9		
	McKenzie	10.2	2.8		
Neck Disability Index after 12 weeks	Routine physical therapy	9.8	4.0		
	McKenzie	4.6	2.3		
Within Subject Effect				516.1	0.000

Table 2 demonstrates the mean score of NDI of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 21.9±6.5, 18.5±5.7,14.3±4.9 and 9.8±4.0 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 22.2±5.1,16.4±4.1,10.2±2.8 and 4.6±2.3 respectively. Repeated measures ANOVA with a Greenhouse-Geisser were used to detect effect within groups and multivariate test was used to detect effect between groups. Results show that there is significant difference between and between group effects ($p=0.00 \leq 0.05$). It means both interventions were equally effective in reducing disability. McKenzie group reduces disability.

Graph

The plot chart shows a comparison of mean score of NDI between McKenzie and routine physical therapy groups at 4-time level. At baseline both groups have significant difference whereas at 4th level there is a clear difference in reduction of disability.

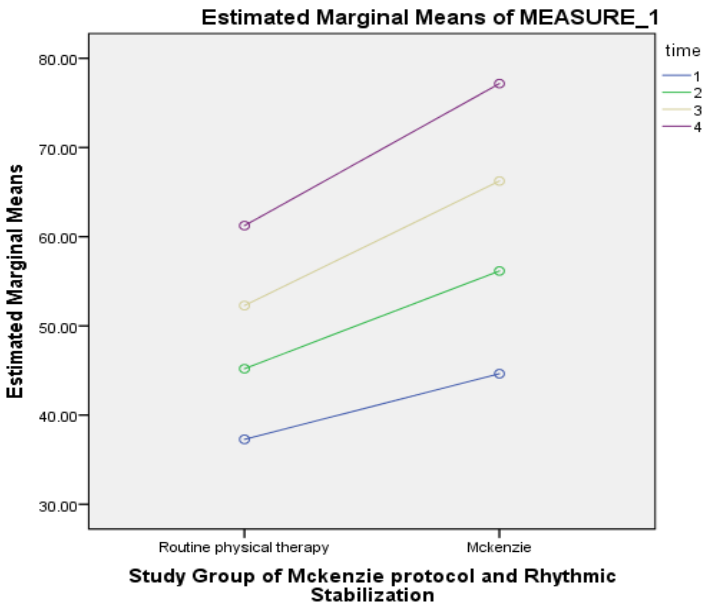


Figure 1 Plot chart for Neck Disability Index

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Table 3 Flexion within and across groups

Descriptive Statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance value
Cervical Flexion range of motion	Routine physical therapy	58.0	4.9	246.8	0.000
	McKenzie	57.2	6.5		
Cervical Flexion range of motion after 4 weeks	Routine physical therapy	61.8	4.3		
	McKenzie	62.3	6.0		
Cervical Flexion range of motion 6 week	Routine physical therapy	65.9	4.4		
	McKenzie	67.8	4.8		
Cervical Flexion range of motion after 12 weeks	Routine physical therapy	70.2	4.3		
	McKenzie	73.6	4.1		
Within subject Effect				484.7	0.000

Table 3 shows mean and standard deviation of flexion ROM for routine physical therapy and McKenzie intervention groups. The mean score of flexion ROM of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 58.0 ±4.9, 61.8±4.3,65.9±4.4 and 70.2±4.3 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 57.2±6.5, 62.3±6.0,67.8±4.8 and 73.6±4.1 respectively.

Table 4 Cervical Extension and Mann-Whitney's test

Descriptive Statistics					
	Type of treatment	Median	Interquartile range	Mean Rank	Significance value
baseline extension ROM	Routine physical therapy	59.5	1.25	23.1	.258
	McKenzie	59.5	1.25	27.8	
4th week extension ROM	Routine physical therapy	60.0	2.0	19.7	0.004
	McKenzie	60.0	2.0	31.3	
6th week extension ROM	Routine physical therapy	52	3.0	21.1	0.032
	McKenzie	52	3.0	29.8	
12th week Extension ROM	Routine Physical therapy	55	3.0	17.9	0.000
	McKenzie	55	3.0	33.0	

Table 4 demonstrates the Extension scoring at four different timings. The data is not normally distributed thus non-parametric tests were applied. Mann Whitney test was applied where mean ranks for Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 23.1, 19.7, 21.1, 17.9 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 27.8, 31.3, 29.8 and 33.0 respectively and significance value was $p \geq 0.05$.

Table 5 Cervical Extension and Friedman's test

	Type of treatment	**Mean Rank**	**Significance value**
baseline extension ROM	Routine physical therapy	1.00	0.000
	McKenzie	1.00	
4th week extension ROM	Routine physical therapy	3.00	0.000
	McKenzie	3.00	
6th week extension ROM	Routine physical therapy	2.00	0.000
	McKenzie	2.00	
12th week Extension ROM	Routine Physical therapy	4.00	0.000
	McKenzie	4.00	

Table 5 demonstrates the Extension scoring at four different times. The data is not normally distributed thus non-parametric tests were applied. Friedman's test was applied where mean ranks for Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 1.0,2.0, 3.0, 4.0 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 1.0, 2.0, 3.0 and 4.0 respectively and significance value was $p \geq 0.05$.

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Table 6 within group and between groups comparison of Left Side Flexion ROM (repeated Measures ANOVA)

Descriptive Statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance value
Baseline Cervical lateral Flexion of left side range of motion	Routine physical therapy	18.9	3.8	403.2	0.000
	McKenzie	17.0	4.7		
Cervical Lateral Flexion 4 week	Routine physical therapy	21.9	4.0		
	McKenzie	22.2	4.1		
Cervical Lateral Flexion 6 week	Routine physical therapy	25.2	4.5		
	McKenzie	28.4	3.5		
Cervical lateral flexion 12 week	Routine physical therapy	28.6	5.3		
	McKenzie	34.8	3.3		
Within subject effect				979.6	0.000

Table 6 shows mean and standard deviation of left side flexion ROM for Routine physical therapy and McKenzie intervention groups. The mean score of flexion ROM of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 18.9±3.8, 21.9±4.0, 25.2±4.5 and 28.6±5.3 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 17.0±4.7, 22.2±4.1, 28.4±3.5 and 34.8±3.3 respectively. Repeated measures ANOVA with a Sphericity Assumed were used to detect effect within groups and multivariate test was used to detect effect between groups. Results show that there is significant difference between and between group effects (p=0.00 ≤0.05). it means both interventions were equally effective in increasing left side flexion ROM.

Graph: This plot shows the comparison of the mean score of McKenzie and routine physical therapy group at 4-time level. At baseline both groups have significant difference whereas 4th time there is a clear difference in improvement of left side flexion.

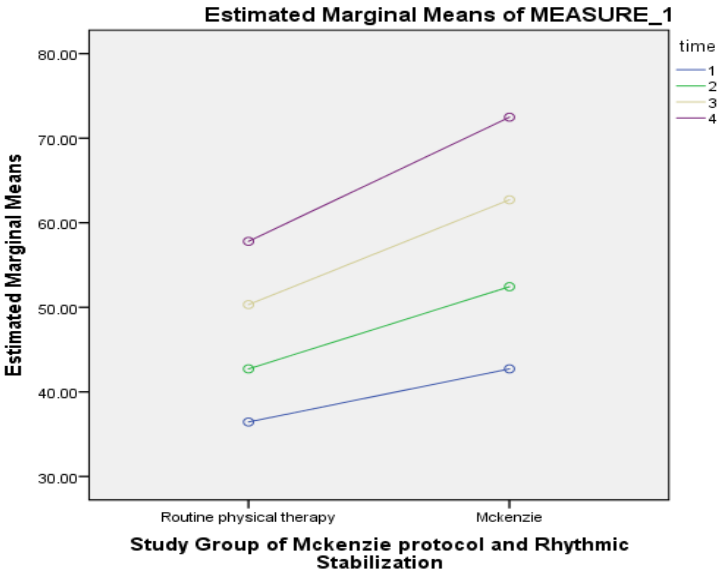


Figure 2 plot chart of Left side flexion

Table 7 Within group and between group comparison of Right-side Flexion ROM (repeated Measures ANOVA)

Descriptive statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance value
Baseline Cervical lateral Flexion of Right-side range of motion	Routine physical therapy	16.7	5.2	412.6	0.000
	McKenzie	17.8	4.2		
Cervical lateral Flexion of Right-side range of motion after 4 weeks	Routine physical therapy	19.5	5.3		
	McKenzie	22.6	4.0		
Cervical lateral Flexion of left side range of motion 6 weeks	Routine physical therapy	22.5	5.3		
	McKenzie	28.5	3.7		
Cervical lateral Flexion of left side range of motion after 12 weeks	Routine physical therapy	25.5	5.6		
	McKenzie	34.0	3.4		
Within subject effect				915.6	0.000

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Table 7 shows mean and standard deviation of Right-side flexion ROM for Routine physical therapy and McKenzie intervention groups. The mean score of flexion ROM of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 16.7±5.2, 19.5±5.3, 22.5±5.3 and 25.5±5.6 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 17.8±4.2, 22.6±4.0, 28.5±3.7 and 34.0±3.4 respectively. Repeated measures ANOVA with a Greenhouse-Geisser were used to detect effect within groups and multivariate test was used to detect effect between groups. Results show that there is significant difference between and between group effects (p=0.00 ≤0.05). it means both interventions were equally effective in increasing right side flexion ROM.

Table 8: within group and between groups comparison of Right Rotation ROM (repeated Measures ANOVA)

Descriptive Statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance Value
Cervical Rotation of Right-side range of motion	Routine physical therapy	36.4	6.6	413.5	0.000
	McKenzie	42.7	7.9		
Cervical Rotation of Right-side range of motion after 4 weeks	Routine physical therapy	42.7	6.2		
	McKenzie	52.4	7.2		
Cervical Rotation of Right-side range of motion after 6 weeks	Routine physical therapy	50.3	5.6		
	McKenzie	62.7	7.0		
Cervical Rotation of right-side range of motion	Routine physical therapy	57.8	4.2		
	McKenzie	72.4	5.1		
Within subject effect				839.8	0.000

Table 8 shows mean and standard deviation of right rotation ROM for Routine Physical therapy and McKenzie intervention groups. The mean score of right rotation ROM of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 36.4±6.6, 42.7±6.2, 50.3±5.6 and 57.8±4.2 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 42.7±7.9, 52.4±7.2, 62.7±7.0 and 72.4±5.1 respectively. Repeated measures ANOVA with a Sphericity Assumed were used to detect effect within groups and multivariate test was used to detect effect between groups. Results show that there is significant difference between and between group effects (p=0.00 ≤0.05). it means both interventions were equally effective in increasing Right rotation ROM.

Table 9: within group and between groups comparison of Left Rotation ROM (repeated Measures ANOVA)

Descriptive Statistics					
	Study Group of McKenzie protocol and Rhythmic Stabilization	Mean	Std. Deviation	F	Significance value
Baseline Cervical Rotation of left side range of motion	Routine physical therapy	37.2	5.7	447.7	0.000
	McKenzie	44.6	8.8		
Cervical Rotation of left side range of motion after 4 weeks	Routine physical therapy	45.2	5.5		
	McKenzie	56.1	7.0		
Cervical Rotation of left side range of motion 6 weeks	Routine physical therapy	52.2	5.7		
	McKenzie	66.2	6.6		
Cervical Rotation of left side range of motion 12 week	Routine physical therapy	61.2	4.9		
	McKenzie	77.1	4.9		
Within Subjects Effect				1019.6	0.000

Table 9 shows mean and standard deviation of left rotation ROM for Routine physical therapy and McKenzie intervention groups. The mean score of left rotation ROM of Routine physical therapy group at baseline, 4th week, 6th week and 12th week were 37.2±5.7, 45.2±5.5, 52.2±5.7 and 61.2±4.9 respectively and for McKenzie exercise group at baseline, 4th week, 6th week and 12th week were 44.6±8.8, 56.1±7.0, 66.2±6.6 and 77.1±4.9 respectively. Repeated measures ANOVA with a Greenhouse-Geisser were used to detect effect within

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groups and multivariate test was used to detect effect between groups. Results show that there is significant difference between and between group effects ($p=0.00 \leq 0.05$). It means both interventions were equally effective in increasing left rotation ROM.

DISCUSSION

The study was done to compare the effects of McKenzie Exercise Program Versus Routine Physical Therapy Management on Pain, Range of Motion and Function with Chronic Mechanical Neck Pain in participants aged 25 to 55 years included both gender after assessment on 4^{th},6^{th} and 12^{th} week. NPRS (Numeric pain rating scale), Goniometer (Range of motion) and NDI (Neck Disability Index) were used. The study found significant improvement($p=0.000$) over follow up readings from baseline, 4^{th}, 6^{th} and 12^{th} week. Subjects treated with the McKenzie exercise program was found to be more effective in reducing pain, improvement in range of motion and decreased Disability in chronic neck pain patient. However, subjects treated with routine physical therapy showed little improvement in reducing pain improvement in ROM and Disability.

A study done by "A. Abdel-Aziem et al", is a randomized control trial was done in 2022 that examined "The effect of McKenzie exercise VS neck flexors and scapulothoracic exercises in patient with chronic neck pain", this study investigates McKenzie exercise against deep neck flexor combine with Scapulothoracic exercises on improving pain severity, cervical mobility and functional disability. He took the young adult in their studies. The current study showed a significant decrease in neck pain severity and disability and significant increase in neck flexion\extension and lateral rotation of McKenzie exercise group as compared to routine physical therapy. The age group included 25 to 45 years where 25% of the population was young adults in this study period. McKenzie exercises was considered to be more effective (1).

There was a significant difference between groups and between groups for NDI Score emphasizing that both interventions were equally effective in reducing Disability in patient with chronic neck pain whereas literature supports that manual therapy intervention is helpful in reducing Disability. A study conducted by Seo seug-cheol was done in 2018 that examined Effects of McKenzie exercise program with sling exercise program. He took 20 subjects who have chronic neck pain that was randomly divided. One group is assigned sling exercises while other group receive McKenzie exercises only. The current study also observed a decrease in index score Disability in McKenzie group. At the end of this research, he concluded that both exercise groups have significant effects on chronic neck pain. Reducing neck discomfort addressing neck dysfunctions improving neck functions and enhancing joint mobility are some of the positive impacts that McKenzie group interventions showcase in current studies (9).

A Randomized clinical trial was conducted by Gorel kjelman by comparing general exercise, McKenzie exercise and a control group in patients with neck pain. He recruited 77 patients, and treatment is randomly allocated to different groups.79% of patient with neck pain is corrected and show improvement in pain, range of motion and Disability by applying general exercises and 31% complaining the pain is persistent during and after treatment. McKenzie exercise group have pain during treatment and he concluded less effective McKenzie in neck pain patients (10). As our study indicated that McKenzie with routine physical therapy have a great significant effect on pain, range of motion and Disability among chronic neck pain patients as compared to the Routine physical therapy group. This shows that Routine physical therapy group are also significant but not considered more effective intervention as we compared it to the other group. There was significant difference between and between groups for NPRS emphasizing both interventions are equally effective to reducing pain when neck patients are treated with McKenzie group as sue shojel conduct his research and shows significant reduction in pain when treating with McKenzie exercise. While measuring pain from NPRS tool there is significant change is seen in McKenzie with routine physical therapy group (9).

A study conducted in 2022 by SQ Wang to check the effect of manual therapy. He did the randomized clinical trial systematic review. He took 12 randomized clinical trials. The participants he took were between 18 to 56 years of age. This meta-analysis found that Manual therapy shows significant results on pain and range of motion in chronic neck pain patients on the other hand when compared this study with current research it shows a clear difference that manual therapy was not be considered as significant as mention in above research (11). McKenzie exercise group shows the significant impact on the pain, improvement in range of motion and decreased Disability as compared to the routine physical therapy. In contemporary clinical practice routine physical therapy is widely used and McKenzie exercises are pushed behind the stage. This study bear witness to the active response of McKenzie exercise in maintaining general physical health that improves the quality of life.

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CONCLUSION

It is concluded that both McKenzie with physical therapy and routine physical therapy are equally effective in management of chronic neck pain but McKenzie exercises with routine physical therapy group has a great effect on pain relief, Improvement in range of motion and disability among chronic neck pain patients.

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