



EFFECTIVENESS OF MCKENZIE EXERCISE VERSUS CORE STABILITY EXERCISE FOR CHRONIC NON-SPECIFIC LOW BACK PAIN IN FEMALE NURSES

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ABSTRACT

Background of the study: Non-specific low back pain is defined as low back pain not attributable to recognizable, known specific pathology. The low back pain is caused by abdominal weakness and tightens the spinal extensor muscle. The purpose of this study was to find out the effectiveness of McKenzie exercise versus core stability exercise on pain and functional activity for chronic non-specific low back pain in female nurses.

Methods: 40 participants after filling the selection, the consent form will be signed. Information sheet will be given and explained in regional language, they were divided into two groups as Group A and Group B using systemic sampling method. The outcome measure pre-test was taken before convenient of the intervention. Group A (n=20) patient had received the McKenzie exercise and Group B (n=20) patient had received the core stability exercise. Both the groups were performed for 3 days per week for eight weeks in an alternative day.

Results

The result shows that P value of VAS is 0.001 (<0.05) showing that there is significant difference between pre-test group A and post-test group B. There is reduction of pain in VAS by 18.3% than the group A.

The P value of ODI score is 0.001 (<0.05) showing that there is significant difference between pre-test group A and post-test group B. There is improvement in functional activity by 21.5%.

Conclusion: The study concluded that the Core Stability exercises (group B) is better intervention when compared to McKenzie exercise among female nurses with chronic non-specific low back pain. However, there is also improvement in the group A (McKenzie Exercise). In the post study the group A participants were taught the core stability exercises.

Keywords: McKenzie exercise, Core stability exercises, Non-specific low back pain.

I. INTRODUCTION

Non-specific low back pain is a common condition. It is reported to be a major health and socioeconomic problem associated with work absenteeism, disability and high cost for patient and society ⁽¹⁾. The prevalence of chronic non-specific low back pain is about 23%, with 11-12% of the population being disabled by it ⁽²⁾. Non-specific low back pain is defined as low back pain not attributable to recognizable, known specific pathology (e.g.: infection, tumor, osteoporosis, lumbar spine fracture, structural deformity) ⁽³⁾.

The lumbar spine consists of five, movable relative to each other, lumbar vertebrae (L1-L5). Totally there are three motion directions possible in the lumbar spine: flexion/extension, side bending and rotation. The lumbar spine exhibits a lumbar lordosis, which is a result and a factor key of the evaluation to the erect posture ⁽⁴⁾. The back (lumbar) muscle play along with abdominal, the gluteal, and the leg muscles an important role in the etiology of low back pain. Studies suggests that multifidus and paraspinal muscle group are significantly smaller in the patient with chronic low back pain then in control patients who are healthy and on the symptomatic side of patients with chronic unilateral low back pain compared with the asymptomatic side ⁽⁵⁾.

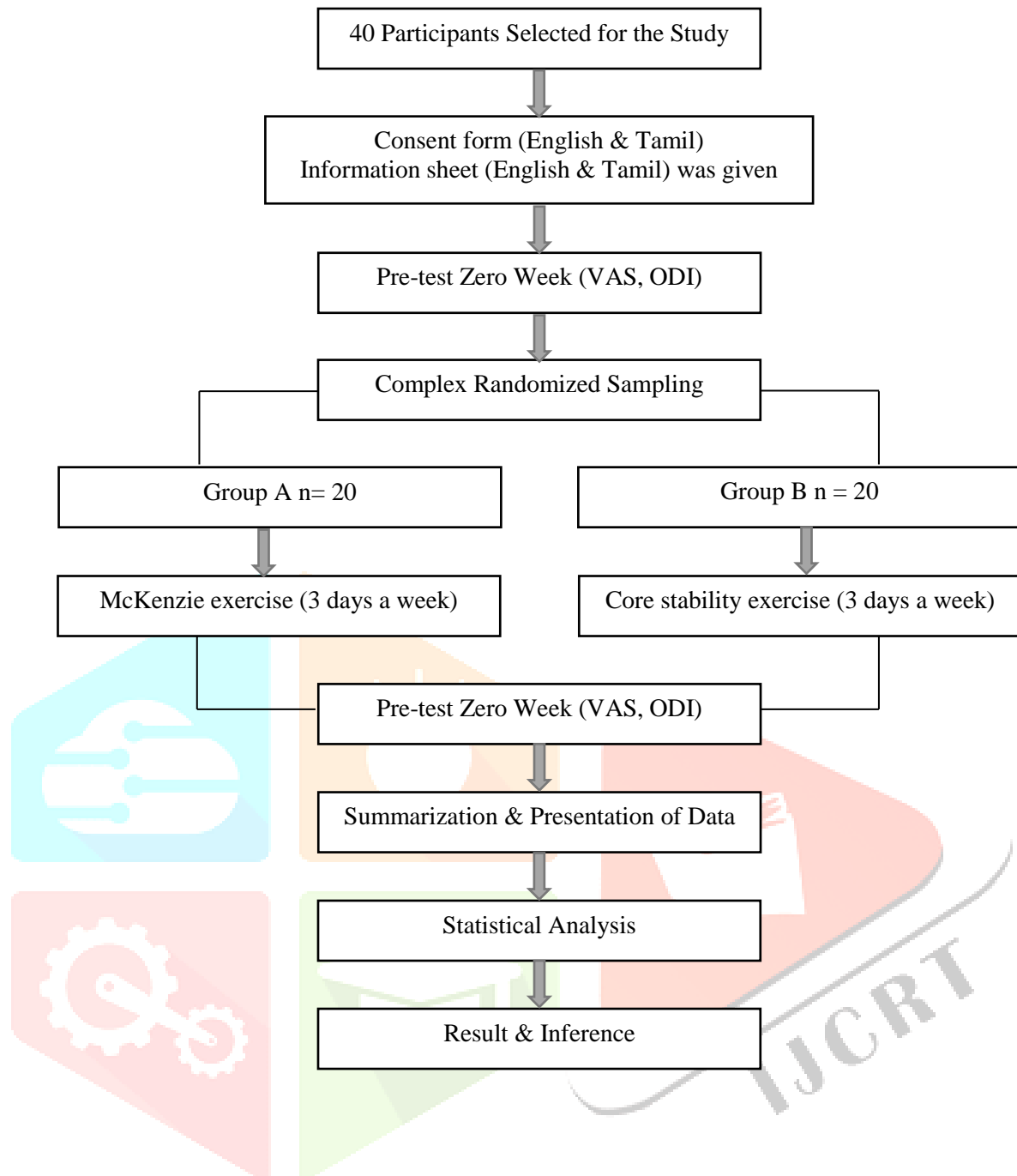
Low back pain is a substantial health problem and as subsequently attracted a considerable amount of research. Clinical trials evaluating the efficacy of a variety of intervention for chronic non-specific low back pain indicate limited effectiveness for most commonly applied interventions and approaches. ⁽⁶⁾

The lifetime prevalence of LBP is reported to be as high as 84% ⁽²⁾ and 85-90% of the cases are classified as 'non-specific' ⁽⁵⁾. Studies from across the globe have documented higher prevalence of LBP in nursing personnel compared with other occupations, 7-9 the annual prevalence ranging from 45% to 77%. The lifetime prevalence of low back pain in nurses is higher than in the general population, with reports as high as 90% ⁽⁷⁾ the study found that the one-week prevalence of LBP was highest in nurses (57%), followed by physicians (50%) and physical therapists (36%).⁽⁸⁾

Nursing personnel have high risk for incidence of low back pain (LBP) followed by development of chronic pain and disability. Multiple risk factors such as patient handling, night shift work and of supporting work culture have been identified. In sub-acute low back pain, higher fear avoidance is prognostic for more pain, disability and not returned to work ⁽²⁾.

2.1 Methods and Measures

This Quasi-experimental study was conducted among female nurses of Aarupadai veedu medical college and hospital. This study involved Age between 25–40 years old participants, who were clinically diagnosed chronic nonspecific low back pain, VAS score of 5-8 were included. Participants with dysmenorrhea, who are pregnant, who have Intervertebral Disc Prolapse, spondylolisthesis, suspicious of malignancy was excluded.



Mckenzie Exercise

Extension in prone lying, Extension in standing, Flexion in Supine Lying and Flexion in Sitting were performed at the rate of 2 seconds holding with 15 repetition for 8 weeks.

Core stabilization exercise program

Bridge exercise in supine position, Back extension Exercise in Prone Position, Bridge Exercise in Lateral Position and Alternate Arm and Leg Lifting Position were performed at rate of 5 seconds holding with 10 repetition for 8 weeks.

3.1 STATISTICAL ANALYSIS

Analyses were conducted according to pre and post-value of VAS and ODI score. Descriptive statistical parameters: mean and standard deviation were calculated.

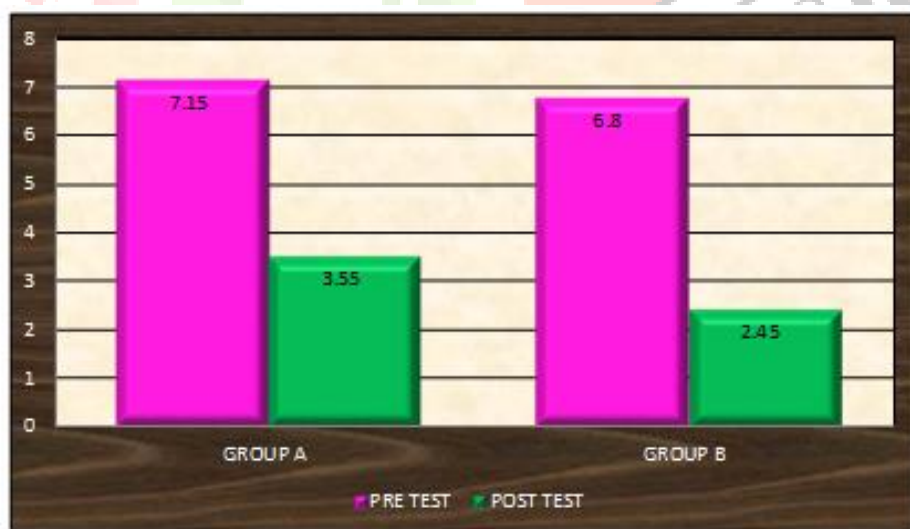
Table 1 shows the pre-test value of VAS for Group A & Group B

Group	Test	Mean	Standard Deviation	P Value	T Value
Group A	Pre test	7.15	0.88	0.2186	1.2509
Group B	Pre test	6.80	0.89		

Table 2 shows the post-test value of VAS for Group A & Group B

Group	Test	Mean	Standard Deviation	P Value	T Value
Group A	Post test	3.55	0.60	0.0001	5.7514
Group B	Post test	2.45	0.60		

Visual Analogue Scale



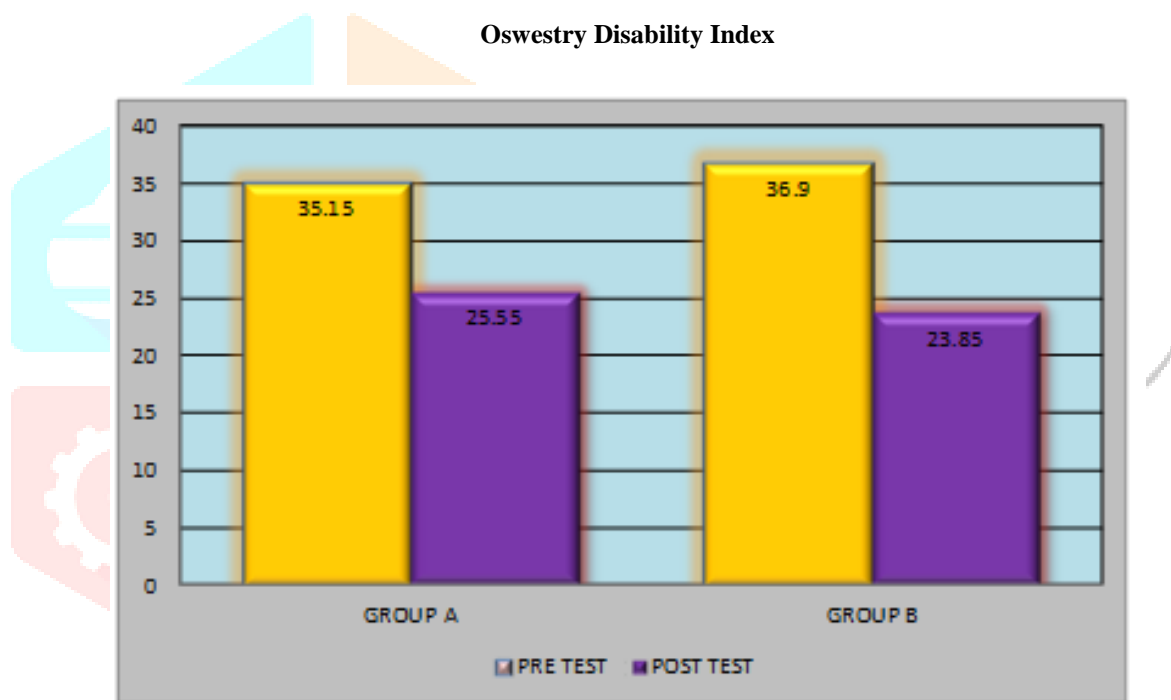
Graph 1-shows the pre & post VAS score of Group A & Group B

Table 3 shows the pre-test value of ODI for Group A & Group B

Group	Test	Mean	Standard Deviation	P Value	T Value
Group A	Pre test	35.15	5.00	0.3050	1.0398
Group B	Pre test	36.90	5.63		

Table 4 shows the post-test value of ODI for Group A & Group B

Group	Test	Mean	Standard Deviation	P Value	T Value
Group A	Post test	25.55	3.63	0.2204	1.2459
Group B	Post test	23.85	4.90		



Graph 2- Shows the Pre & Post ODI Score of Group A & Group B

4.1 RESULT

The result shows that P value of VAS is 0.0001 (<0.05) showing that there is significant difference between pre-test group A and post-test group B. There is reduction of pain in VAS by 18.3% than the group A. The P value of ODI score is 0.001 (<0.05) showing that there is significant difference between pre-test group A and post-test group B. There is improvement in functional activity by 21.5%.

5.1 CONCLUSION

The study concluded that the Core Stability exercises (group B) is better intervention in when compared to McKenzie exercise among female nurses with chronic non-specific low back pain. However, there is also improvement in the group A (McKenzie Exercise). In the post study the group A participants were taught the core stability exercises.

6.1 DISCUSSION

Non-specific low back pain, a common type of LBP, affects the daily life of affected nurses⁽²³⁾. It may be due to the fatigue of the paravertebral muscles, which need to maintain contraction for a long time to ensure the stability of the spine and the movement of the trunk. Long-time standing or abnormal signature may worsen these muscles. Till now, therapy for NSLBP is very limited, including rest in hard mattress, physical therapy (e.g., hot compress), and appropriate analgesics. Previous studies showed that the effect of treatments for mild NSLBP was better than severe patients, which implied that early diagnosis and interventions are very important. Traditional diagnosis of NSLBP mainly relies on self-report, physical examination, scale evaluation, CT and MRI imaging, and traditional electromyography.⁽²⁴⁻²⁵⁾

The study aimed to find out the effectiveness of McKenzie exercise Versus core stability on pain and functional ability in female nurse's low back pain. Intervention given three sessions per week, pain reduction assessed using VAS, improvement in the functional disability assessed using ODI. The statistical analysis was done using mean value of visual analogue scale and Oswestry disability index.

In the present study age and BMI not showed statistical difference in both groups which represents the homogeneity of the subject. Also, there was significant difference in the base line or pre interventions value for VAS and ODI. The both groups were homogenies.

Total 40 female nurses were included in the study according to selection criteria. The group A n= 20 nurses received McKenzie exercise. The group B n=20 nurses received core stability exercise. Both the interventions given for the period of eight weeks (30minutes)

The above result is similar to the finding of Hosseini far et al.⁽²⁶⁾ investigated the effect of stabilization and McKenzie exercises on pain, disability and muscles. Pain decreased in both groups, while the disability score declined in the stabilization group only, concluding that McKenzie exercises were better in reducing pain, but not disability scores, as compared to stabilization. On the other hand, Miller et al.⁽²⁷⁾ Compared McKenzie and stabilization program and concluded that there was no statistical difference between groups in terms of pain and functional disability scores. However, both groups reported reduced pain and functional disability.

In the study we have to stick with our own hospital staff and that could not analysis the impact of working hours, physical activity and life style. Post study Group A participant thought the Core Stability Exercises.

7.1 LIMITATION

Hours of working was not considered
Impact of long standing was not considered
Restricted to one hospital

8.1 RECOMMENDATION

Use of electrical modalities
Outcome was included in physical factors
long term impact was assessed

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