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Research Article

**A COMPARATIVE EXPERIMENTAL RESEARCH ON
EFFECTIVENESS DEGREE OF CORE STABILIZATION
EXERCISES AGAINST CONVENTIONAL THERAPIES IN
SPECIFIED LOWER BACK PAIN (LBP) CASES**¹Muhammad Awais, ²Mehjabeen Sadiq, ³Hafiza Mehi Jabeen¹District, Faisalabad²Shehbaz Shareef Hospital, Multan.³Children Hospital Multan / Institute of Child Health, Multan**Abstract:**

Objectives: We aimed at the examination of core stabilization exercises effects with the method of conventional physiotherapy to manage non-specified pain in the lower back.

Methodology: Research design was comparative experimental held at Services Hospital, Lahore (Physiotherapy Department) completed in one year from March, 2016 to April, 2017. Our research sample included forty cases of lower back pain (LBP) in the age bracket of (18 – 65) years and made two random groups of the total sample respectively Group A & B named as experimental and control group. Group A was managed with conventional physiotherapy and core stabilization exercises; whereas, Group B was only given conventional physiotherapy. Physical functional and pain score outcomes were observed, we used VAS for the measurement of pain score and Modified Oswestery Disability Questionnaire (MoDQ) was used for the measurement of the physical functional outcomes.

Results: Significant MoDQ and VAS values were obtained through paired t-test for the participants of Group A having P-value (0.000) for each group; whereas, in Group B P-values were for each group was (0.000). With the application of repeated variance measure analysis (ANOVA), non-significant P-values of VAS and MoDQ were observed respectively as (0.09) and (0.018).

Conclusion: Pain severity improvement was found in both A & B groups in terms of physical functional outcomes as well with the help of interventions opted for both groups as mentioned in methodology. Hence it is suggested that any interventional strategy can be used for the improvement of physical functional improvement and pain score stability and relief symptoms in the patients who suffered from the incidence of LBP in the given age group as we studied in our research. Both interventions are equally effective and result oriented to treat LBP.

Keywords: Conventional Physiotherapy, Core Stabilization Exercises, Visual Analogue Scale (VAS), Lower Back Pain (LBP) and Modified Oswestery Disability Questionnaire (MoDQ).

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INTRODUCTION:

LBP is normally localized beneath 12th rib area and in the lower back gluteal folds and pain is radiated in the direction of both the legs or in few cases there is no radiation of pain [1]. For non-specified pain no surety of the cause can be defined. LBP may be referred to a pain which is because of the specific pathology like inflammatory conditions, disc prolapse, osteoporosis, tumors, herniated nucleus pulposus and fracture [2]. Cause may be identified in 5 – 10 percent of the cases but in majority of the cases it is not known [1]. Numerous cases have been reported whether with radiation of pain or no radiation of pain; the possible causes may include idiopathic, degenerative, inflammatory, congenital, renal, traumatic, postural, gynecological, metabolic, neoplastic, rectal systemic or mechanical [3]. USA faces the incidence of LBP because of cold which results in the absence of manpower from their Work Centre's [4]. Among the factors of risk we may include life style, gender, age, occupation, smoking and socioeconomic status [5].

Pain is decreased with the help of numerous conventional techniques for the overall improvement of the functional state which includes intake of pain killers, naproxen ibuprofen, NSAIDS, opioids, analgesics, steroids and muscle relaxants [6, 7]. Few other modalities are also in fashion such as heat therapy, mechanical or manual traction, therapeutic ultrasound, short – wave diathermy (SWD), massage, transcutaneous electrical nerve stimulator (TENS) and therapeutic exercises [8].

LBP can be effectively treated with Core stabilization exercises with a principal aim of improvement in the spinal stability, endurance, strength and function on the same hand reduction in the pain. Spine stability can also be improved through the core musculature strengthening which also decreased the linked instability [9]. Actual target of the core stabilization exercises are abdominal, gluteal muscles and para-spinal stabilization. There are few exercises which are included in the stability of the core such as abdominal curls up, side – bridge, oblique curls up, quadruped exercises with an ongoing developmental pattern of these exercises.

MATERIALS AND METHODS:

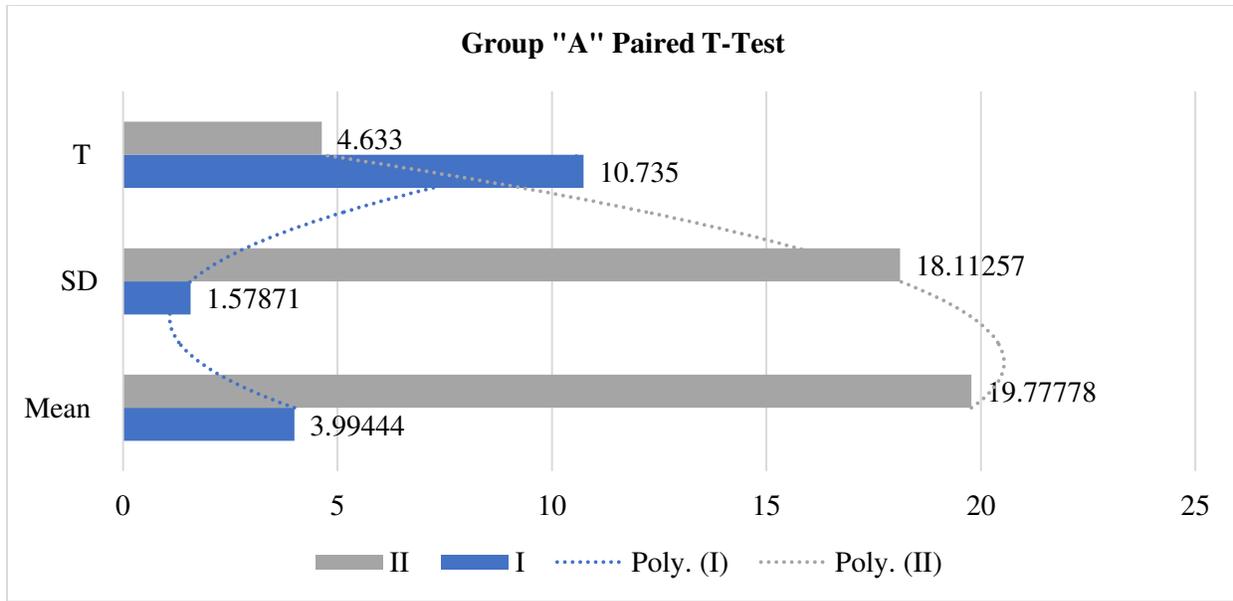
Research design was comparative experimental held at Services Hospital, Lahore (Physiotherapy Department) completed in one year from March, 2016 to April, 2017. Our research sample included forty cases of lower back pain (LBP) in the age bracket of (18 – 65) years and made two random groups of the total sample respectively Group A & B named as experimental and control group. Group A was managed with conventional physiotherapy and core stabilization exercises; whereas, Group B was only given conventional physiotherapy. Physical functional and pain score outcomes were observed, we used VAS for the measurement of pain score and Modified Oswestery Disability Questionnaire (MoDQ) was used for the measurement of the physical functional outcomes. We included all the LBP cases in the given age bracket without any discrimination of gender; whereas, malignancies, spinal infections, tumors, fever, ankylosing spondylitis, weight loss and chills cases were not made a part of this research. Systematic technique of sapling was used as even and odd numbers were included respectively in Group A and B. Sample was divided twenty patients in each group. Thirty minutes session was given to every LBP cases three times a week. We used (0 – 10, Moderate to Severe) VAS for the measurement of pain and MoDQ for the functional stability improvement. Measurements were taken at different intervals and analyzed with the help of SPSS software with a significant P-value of (< 0.05). Frequency tables were used for quantitative data; whereas, frequencies were used for the qualitative data. Two interventions effect was observed by Paired t-test. Comparison of both the groups was made through repeated measure ANOVA.

RESULTS:

We studied forty patients for LBP outcomes in which males and females were respectively 27 (67.5%) and 13 (32.5%). Gradual symptoms onset was observed in 22 cases (55%) and 18 cases had sudden onset (45%). An obvious radiology outcome about pathology were observed in 14 cases (35%). There was an increased involvement of the right side of the back in 25 cases (62.5%).

Table – I: Paired t-test for group “A” managed with conventional and core stabilization therapies

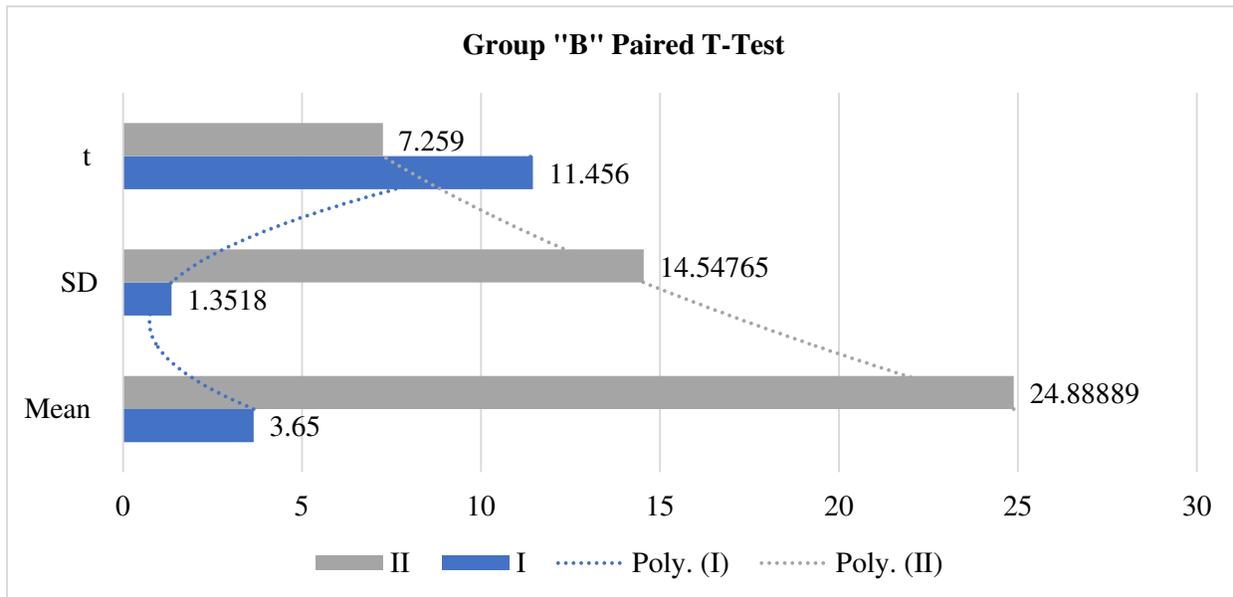
Pair	Variables	Mean	SD	T	P-Value
I	VAS (pre)	3.99444	1.57871	10.735	0.000
	VAS (post)				
II	MoDQ (pre)	19.77778	18.11257	4.633	0.000
	MoDQ (post)				



Group A was observed with mean pre and post treatment VAS score respectively as (7.3 ± 1.2) and (3.3 ± 1.3) and of mean score of MODQ pre and post treatment was observed as (66.5 ± 12.3) and (46.7 ± 8.8) . These values were significantly significant having P-value for each as (0.00).

Table – II: Paired T-test for group “B” when only treated with core stabilization exercises

Pair	Variables	Mean	SD	t	P-Value
I	VAS (Pre)	3.65	1.3518	11.456	0.000
	VAS (Post)				
II	MoDQ (Pre)	24.88889	14.54765	7.259	0.000
	MoDQ (Post)				



Group B was also assessed for mean pre and post VAS and MoDQ scores observed for VAS (7.4 ± 1.04) and (3.7 ± 1.09) ; for MoDQ observed as (70 ± 10) and (45 ± 9.2) with a statistical significant P-value as (0.00). P-value for VAS was (0.09) and MoDQ as (0.018) with the application of repeated ANOVA.

DISCUSSION:

Human health is adversely affected by LBP as it reduces the working ability in the work centers and also reduces the attendance proportion in the offices and work centers. At some point of life in an individual's life almost 85% of the population faces the incidence of LBP [10]. We aimed at the examination of core stabilization exercises effects with the method of conventional physiotherapy to manage non-specified pain in the lower back. Both population groups were managed with respective therapies; we observed in our research outcomes that males were dominant over female with a proportion of (67.5%) in the development of LBP onset. Gradually developed symptoms were about 55%, radiological changes were observed in 35% LBP cases with linked backache; whereas, right back involvement was seen in 62.5%.

Van Tulder observed medical interventions such as analgesic and NSAIDs for the reduction of the LBP and backache with additional stiffness and pain reduction by using muscle relaxants [6, 7]. Modalities have also been employed by few of the authors such as TENS USG and SWD which also reduce the functional activities and pain reduction in the LBP patients [11]. Rubinstein SM is of the view that a safe intervention is spinal manipulation and it is a conservative LBP relaxing technique which improves disability and reduces the pain [12]. John Wiley also studies the benefits associated with therapies and exercise related interventions. He concludes that exercise therapy is effective and helpful for the safe reduction of the LBP even in the cases of chronic LBP [13]. We focused on the core stabilization exercises implementation in the LBP cases including conventional physiotherapy as it can reduce the level of pain and improve the physical functional status for the overall improvement of life quality.

A research held by Ferreira observed that better outcomes can be achieved through core stabilization against the cases who had no intervention or against the conventional management therapies [14]. Scarce literature is available about the core stabilization exercises including conventional strategies to manage the onset of LBP. Both the strategies have been studied individually; whereas, combined effectiveness has not been studied in any of the comparative research study.

We observed both the strategies in our research to measure the overall improvement in the physical function improvement and pain reduction level through conventional and therapies and core stabilization exercises. Statistical P-values were

observed significant for VAS and MoDQ respectively (0.000) for each.

CONCLUSIONS:

Pain severity improvement was found in both A & B groups in terms of physical functional outcomes as well with the help of interventions opted for both groups as mentioned in methodology. Hence it is suggested that any interventional strategy can be used for the improvement of physical functional improvement and pain score stability and relief symptoms in the patients who suffered from the incidence of LBP in the given age group as we studied in our research. Both interventions are equally effective and result oriented to treat LBP. Effectiveness can further be studied through various approaches for the treatment of LBP.

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