Original Article

Effects of Exercises On Pregnancy Related Low Back Pain: A Quasi Experimental Study

Abida Arif, Ghousia Shahid, Muhammad Arif Siddique, Khalid Aziz, Muhammad Faisal Fahim

ABSTRACT

Objective: To evaluate the effect of therapeutic exercises on pregnancy related low back pain in a tertiary care hospital of Karachi.

Material & Methods: This was a quasi-experimental study with non-probability convenience sampling technique. Study was carried out at Liaquat National Hospital Karachi. Patients were divided into two groups (Experimental and Control). Inclusion criteria were age <30 years, 2nd and 3rd trimester, stable medical status and those who gave the informed consent. Exclusion were pregnancy induced hypertension (>140/90mmHg), Cardiac disease, diabetes mellitus, persistent vaginal bleeding, history of miscarriages, decreased foetal movement. Data was collected through assessment Modified Oswestry Low back pain disability questionnaire. SPSS version 23.0 was used to analyze the data.

Results: A total of 30 samples were selected for the study. There were 15 respondents in experimental while 15 in control group. Disability levels were found to be significantly decreased after post treatment in experimental group with P-value= 0.002. It was seen that number of patients was increased from 1(6.7%) to 6(40%) in minimal disability group whereas crippled back pain group in pre-treatment group was totally shifted towards minimal or moderate pain 3(20.0%) and no case was seen in post-treatment.

Conclusion: Low back pain in pregnancy can disturb daily life routine but exercise therapy and proper counselling will lead stress free life to female in gestation. After post treatment in experimental group showed decrease in pain as compare to control group who were not provided any exercise therapy. Working women in experimental group also showed decrease by crippled back pain to moderate pain after exercise. So in the end researcher suggest that physiotherapy exercises play a vital role in reducing Low Back Pelvic Pain (LBPP) during pregnancy.

Keywords: Therapeutic Exercises, Pregnancy, Low back pain

INTRODUCTION:

Pregnancy is tremendous period for a women's life as it is the symptom of a new arrival to the family. The physical change of body needs care and attention to safe from different disease. One of the main discomfort in pregnancy is low back pain 90% pregnant women are suffering from it[1].

During maternity, the incidence of low back disorders might have world consequences involving physical, psychological and social impacts among ladies and their unborn children[1,2].

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Low back pain (LBP) could be a common grievance amongst girls throughout physiological state, having a good impact on their quality of life.

The effects of low back pain reduces quality of life during pregnancy. Hippocrates described low back pain during pregnancy is a known problem in many countries. In 1962 Walde was the first who recognized the differences between Pelvic Girdle pain (PGP) and Lumbar pain (LP). Later, Ostgaard et al. set the criteria for the differentiation between these two entities[3].

Hormonal and biomechanical changes can change the daily life routine of a pregnant women with low back pain. Moderate to severe pain observed to be more frequent in literatures because it disturbs pregnant women to complete their daily activities[4].

A study showed 50% prevalence of low back pain in pregnancy. These women will suffer complications of LBP during postpartum period[5].

Most of the females feels back pain throughout gestation. The causes area unit manifold: their weight increase on the one hand, and also the specific physiology of the spine on the opposite. Throughout gestation, a woman's weight will increase by fifteen to twenty five percent; this signifies a bigger burden on the tendons, ligaments, and joints Moreover, relaxin and estrogen loosen the ligaments and therefore

produce a further predisposition for injury[6]. The enlarged uterus and also the increase in breast volume shift the body's center of gravity to the front. The pelvis is tilted at the same time, and lordotic curve will increase[7].

Risk of pain also increases in women who had previous pregnancies. The volume of risk cannot estimated in any pregnant women. However those women who were suffering from LBP before pregnancy are more vulnerable to develop moderate to severe pain of unknown duration after child birth[8].

One can reduce pain after minimizing their physical activities which effect pelvis. These activities include standing on one leg, climbing stairs, walking long distances and standing for long periods of time, maximize vocational ergonomics, take many short breaks, try to lie down, and educate pregnant women on structural fitness, i.e., body ergonomics, to avoid low back stress. Also, avoid lifting anything over several pounds; strengthen back muscles (Antoniadis, 2012)[9].

If low back pain treated on early stages then treatment will lead to the best possible outcome. Conservative management is the gold standard including physiotherapy, stabilization belts, nerve stimulation, pharmacological treatment, acupuncture, massage, relaxation, and yoga[10].

The severity of back pain can be reduced by taking its preventive measures. These are the techniques which help to decrease back pain during pregnancy. Get plenty of rest, use exercises approved by health care provider that support and help strengthen the back and abdomen, avoid high heels and sleeping on the back (Cunningham and Gary, 2011)[11].

One of the best treatment to minimize pain in pregnancy is Physiotherapy. This includes passive therapies, such as manual therapy, and active treatment, such as therapeutic exercises[12]. Further treatment modalities include aquatic therapy, acupuncture, ergonomic advise, and the use of a pelvic belt. Exercise can reduce the intensity of pain, improve function and reduce disability[13,14].

To evaluate the effect of therapeutic exercises on pregnancy related low back pain in a tertiary care hospital of Karachi.

MATERIAL & METHODS:

This was a quasi-experimental study with non-probability convenience sampling technique. Study was carried out at Liaquat National Hospital Karachi. A prior ethical approval was taken from the Institute Ethical Committee. Participants gave their informed consent and the study was conducted according to the Declaration of Helsinki. Patients were divided into two groups (Experimental and Control). Sample size was found to be 30 which divided equally in both groups.

Inclusion criteria were age < 30 years, 2nd and 3rd trimester, stable medical status and those who gave the informed consent. Exclusion criteria were pregnancy induced hypertension (>140/90mmHg), Cardiac disease, diabetes mellitus, persistent vaginal bleeding, history of miscarriages, decreased foetal movement. Breech presentation, placenta preavia, intrauterine growth retardation or any pain due to exercise.

Data was collected through assessment Modified Oswestry Low Back Pain Disability Questionnaire, Visual Analog Scale, Quebac Back Pain Disability Scale. The treatment protocol of exercises were given to experimental group only. The procedure was moist heat or cold pack as needed to decrease pain. Advised to wear pregnancy support sacroiliac belt to improve posture. Advised to do regular aerobic exercise such as walking, swimming and bicycling. Strengthening exercise (pelvic tilts, kegels) and stretching (back, hamstring wall posture stretch). This was a complete 10-15 minutes exercise.

Statistical Analysis was done through SPSS version 23.0. Continuous variable (Age, years) was presented in Mean ± Standard Deviation. For categorical variables frequency and percentages were presented. Disability levels were measure Pre and Post separately by using chi-square test. P-Value = 0.05 considered to be statist carry significant.

RESULTS:

A total of 30 samples were selected for the study. There were 15 patients in experimental group while rest were in control group. Mean age in control group was 26.5 ± 1.8 with range of 22-29 years and in experimental group it was 25.8± 2.4 ranging from 20-29 years.

Occupation was categorized in housewife and working women. In control group there were 13 (80%) house wife and 2 (20%) were working women while in experimental group house wife were 9 (60%) and working women were 6(40%). (Figure 1)

Disability levels were found to be significantly decreased after post treatment in experimental group with P-value= 0.002. It was seen that number of patients was increased from 1(6.7%) to 6(40%) in minimal disability group whereas crippled back pain group in pre-treatment group was totally shifted towards minimal or moderate pain 3(20.0%) and no case was seen in post-treatment. (Table 1)

In control group disability levels were significantly increased in post treatment with P-value=0.003. the level of disability in minimal disability group is increased from pre to post treatment as well as the controls were shifted from minimal disability 3(20%) to moderate 7(46.7%) and crippled back pain 4 (26.7%) disability groups. (Table 2)

DISCUSSION:

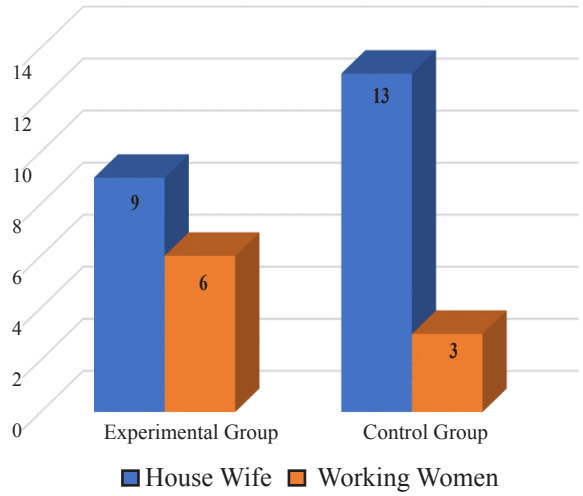
There was a significant difference between the experimental and control groups considering LBPP. The results showed low back pain were increase in the control group because no treatment provided to them with significant P-value of 0.003. While in experimental group physical disability due to LBPP decreased significantly with P-value of 0.002. In

	Experimental Group (n=15)		P-Value
Disability	Pre	Post	
Minimal Disability (0-20%)	1(6.7%)	6(40%)	
Moderate Disability (>20-40%)	8(53.3%)	6(40%)	0.002
Severe Disability (>40-60%)	3(20.0%)	3(20.0%)	
Crippled back pain (>60-80%)	3(20.0%)	0	

Table 1: Comparison between Pre and Post disability with level of Pain in Experimental group
*Chi-square test was applied to see the significance at P-value = 0.05

	Control Group (n=15)		P-Value
Disability	Pre	Post	
Minimal Disability (0-20%)	3(20.0%)	0	
Moderate Disability (>20-40%)	5(33.3%)	7(46.7%)	0.003
Severe Disability (>40-60%)	4(26.7%)	4(26.7%)	
Crippled back pain (>60-80%)	3(20.0%)	4(26.7%)	

Table 2: Comparison between Pre and Post disability with level of Pain in Control group
*Chi-square test was applied to see the significance at P-value = 0.05



Fugure 1: Distribution of Occupation

this way researcher would suggest that a pre-designed physical therapy may reduce the severity of LBPP and its related disability in pregnant women.

Literature showed the positive feedback of exercises to reduce level of pain in back and pelvic region. Shim et al[15] reported six different physical therapy exercises in his study. Exercise is the best option to decrease LBP in pregnancy. Their exercise program included pelvic tilting, knee pull, curl up, lateral straight leg raising, and the Kegel exercise which was very similar to the program in the present study.

Kulge J et al[16] showed in his research that outcomes of physical therapy exercises reduce low back pain in pregnancy also decrease lumbar and pelvic pain intensity.

Another study by Martins et al[17] reported that 80% pregnant female observed back pain specifically in lumbar and sacroiliac region. Reason of having back pain is not still clear but factors are already diagnosed i.e previous pregnancy, preexisting back pain before pregnancy, increased in weight or Body mass index (BMI) and muscular problems[18].

In present study low back pain diagnosed through disability scale. In experimental group moderate pain was felt by 8 (53.3%) patients, severe and crippled back pain was same 3 (20%) number of respondents whereas minimal pain was seen in 1(6.7%). After implication of therapeutic exercises to them there were no respondents in crippled back pain, only 3 (20%) found in severe back pain, minimal & moderate pain was same 6(40%) participants.

Similar findings reported in a study done in United States of America by Wang et al[19], the average low back pain during pregnancy with excercises was moderate in majority cases. Another study done by Stapleton et al[20] stated similar results to the present study that 35.5% of women with severe pain showed improvement after excercise.

In this study when observing pre-treatment in experimental group, house wife were found in minimal and moderate disability group 1 (11.1%) and 8 (88.9%) respectively and working women were observed in severe pain 3(50%) patients and crippled back pain 3(50%) patients. After post-treatment house wife were 6 (66.7%) in minimal disability group and 3 (33.3%) found in moderate disability group whereas working women were shifted in moderate 3(50%) and severe disability 3(50%) patients respectively. A study reported in Bangladesh[21] among the 51 participants who reported LBP during pregnancy, 36 (70.59%) experienced

that LBP increased with work. The same findings were seen in present study that working women were fall in the severe and crippled back pain category which means they work hardly and they feel more pain as compare to house wife.

In the present study it was commonly observed that age is also the risk factor in young pregnant women with mean age 25.8± 2.4 years they were more liable to to progress low back pain than any other age group. Wang et al[20] also reported that low back pain during the current pregnancy was predicted by age. Stapleton et al[21] stated that young female were more venerable to develop LBP in their gestation period.

Maximum female in pregnancy diagnosed with LBP. As the findings were reported in previous study that only 50% women will go for advice by the doctor or physiotherapist whereas 70% women consider back pain seriously take different treatments[22]. The diagnosis of LBP in early stages will decreases the risk of advance pain because a women in pregnancy will have different mode of treatments.

LBP leads to become wide range in physical diagnosis but mostly women improve their health status after childbirth. The treatment options for reducing LBPP are physical therapy exercises, sacroiliac belts, electrical muscle stimulation, usage of drug therapy, dry needling, stress relief through massage techniques and yoga[23,24]. Pregnant women can reduce weight via exercise and walk during postpartum period and it will help to avoid risk of LBP[25]. The common way of treating LBP in pregnancy has been found to be exercises. The effects of exercises will reduce pain if patient follow a physiotherapist for management of LBPP.

CONCLUSION:

Low back pain in pregnancy can disturb daily life routine but exercise therapy and proper counselling will lead stress free life to female in gestation. After post treatment in experimental group showed decrease in pain as compare to control group who were not provided any exercise therapy. Working women in experimental group also showed decrease in pain by crippled back pain to moderate pain after exercise. So in the end researcher suggest that physiotherapy exercises play a vital role in reducing LBPP during pregnancy.

RECOMMENDATION:

Pregnancy is not a pathology, but the consequences faced due to pregnancy dealt accurately and emphasis of physical activity in pregnant women should be encouraged. Specifically pregnancy related LBP can be better controlled by following proper exercise protocol, relaxation techniques and adjustment of posture with increasing body weight prescribed a qualified physical therapist. Awareness of exercise program for pregnancy related low back pain is available for every women either working or housewife.

CONFLICT OF INTEREST: None

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