

“Effectiveness Of Backstretch Exercise On Low Backache Among Antenatal Mothers Admitted In Tertiary Care Hospital At Puducherry”

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Abstract

Back pain is one of the common symptoms during pregnancy. In some women, it starts early pregnancy and remains throughout the end of pregnancy. In other women it worsens and continuous to hinder even after the baby born. As the uterus expands, it weakens the abdominal muscles and alters center of gravity. They also affect the posture and lead to pressure on back, presses a nerve, the back begins to ache. During pregnancy, the ligament in the body naturally become softer and stretch to prepare for labor. This can put a strain on the joints of the lower back and pelvis, which can cause backache. Recent studies reported an average duration of 6.5 weeks of sick leave as a result of moderate lumbar pain, approximately 70% of women will report low backache at some points. The incidence of low back pain is 50-80% during antenatal period. During antenatal period, the occurrence of low back disorder could have global consequence involving physical, psychological and social impacts among women and their unborn children. The main aim of our study was to assess the effectiveness of backstretch exercise on low backache among antenatal mothers admitted in tertiary care hospital at Puducherry. Methodology: A quantitative research approach and true experimental research (two groups' pre and post-test) design. Sixty samples with low backache were selected by simple random sampling technique (Lottery Method). Thirty in group I (Experimental) received back stretch exercise and 30 in group II (control) has received routine care. In pre-test demographic variables was collected by using structured interview schedule and the level of low backache assessed by Eric.L. Linlow backache scale during motion, standing and sitting. Backstretch exercise given to the experimental group. It is technique to reduce the level of low backache, gentle spine movements. Gentle Spine Movements for 5 minutes and Cat – cow method for 5 minutes. Repeat each step for 3 times. Backstretch exercise was continued for 3 days morning and evening. In post-test level of low backache was assessed with same Eric.L. Linlow backache scale by the 4th day. The data were analyzed by using descriptive and inferential statistics like frequency, percentage, mean, standard deviation, chi square test and wilcoxon signed rank test. Results: The pre and post-test means value

for group I while motion was 4.73 and 3.5, while standing 5.47 and 4.2, while sitting 6.37 and 4.73. The pre and post-test mean value for group II, while motion was 3.93 and 5.1, standing was 4.77 and 5.67, while sitting 5.57 and 6.5. The obtained Wilcoxon value for group I was 4.944, 4.916 and 4.969 during motion, standing and sitting respectively. The obtained Wilcoxon value for group II was 5.152, 4.838 and 4.613 during motion, sitting and standing. It was statistically significant at P value was < 0.001. There is significant difference between the pre and post-test assessment score of reduction of backache in experimental group. The result shows that backstretch exercise was effective in reducing low backache during antenatal period. CONCLUSION: The study concludes that backstretch exercise is effective on reduction of low backache among antenatal mothers. From this study, the backstretch exercise can be followed by all the antenatal ward nurses as evidence-based practice for low backache among antenatal mothers.

Keywords: Effectiveness, Backstretch Exercise, Low Backache, Antenatal Mothers.

1. BACKGROUND OF THE STUDY

In pregnancy the second trimester is high risk time to cope up. As the uterus expands, it weakens, the abdominal muscles alter the center of gravity. This affects the posture and leads to pressure on the back, the strain on the back presses a nerve, the back begins to ache^{1,2}. During pregnancy, the ligament in the body naturally becomes softer and stretches to prepare for labor. This can put a strain on the joints of the lower back and pelvis, which can cause low backache. The known risk factors of low backache during pregnancy are previous history of low backache, maternal age and multiparity and physical activity. Increase in Body Mass Index during pregnancy is a much-debated risk factor in the occurrence of low backache^{3,4,5}.

Carrying extra weight increases the stress on joints and work for muscles⁶. Muscular imbalance and stress lead to increased pain in the back when walking, standing for long hours, getting out of a low-level chair or bending and lifting things. Low backache is a frequently reported complaint during pregnancy^{7,8,9,10}. According to a review more than two-thirds of pregnant women suffered from low backache during their pregnancies. These pains often remain underestimated and undertreated. According to recent study reports 50-80% of the women were suffering from low backache and this discomfort mostly starts between the fifth and seventh month of pregnancy. Some reports show a mean gestation age at start of pain of 22 weeks. However, some did not receive any treatment from their caregiver and among those who were treated, that they were relieved by the proposed therapy.^{11,12,13,14}

A recent study reported an average duration of 6.5 weeks of sick leave as a result of moderate lumbar pain. Approximately 70% of women will report low backache at some points. However, the incidence of low backache is reported by 50-80% of women have low backache during antenatal period^{12,13,15,16,17}. Exercise involves the physical and mental ability to participate in carrying out better functions of the body through pregnancy. Backstretch exercise is a technique that reduces low backache. It consists of two main steps namely gentle spine movement and low backstretch. As there is no observed side-effect from its use, the main concern is the safety^{18,19,20}.

2. NEED AND SIGNIFICANCE OF THE STUDY:

Pregnancy is a special time in women's life and can affect each person differently both mentally and physically¹. As the women's abdominal muscles are stretched and tone is diminished, they lose their ability to contribute to neutral posture. During pregnancy, production of the hormone relaxin increases ten-fold. The hormone creates joint

laxity, which not only allows the pelvis to accommodate the enlarging uterus, but also weakens the ability of static supports in the lumbar spine to withstand shearing forces.^{2,21,22,23}

Backstretches when done on a regular basis will maintain the flexibility of spinal ligament, muscles and fascia. Maintain back mobility by doing a few back stretching exercise on regular basis is important in terms of preventing low backache. Backstretches is necessary to maintain mobility, maintain joint health, sustain a good posture and normalize force on discs. Pain originates from ligament strains muscular fatigue and bulging discs will response to correct form of strengthening. Gentle spine movement helps to ensure that the lower back does not ache too much and this exercise is relieving ligament pain during pregnancy^{24,25}. During pregnancy, women need to take special care of them self. She may already know about the importance of eating well and taking prenatal vitamins, but she has never thought about exercise as routine while pregnant. Normally in India is a practice of treating pregnant women like porcelain dolls. Many women feel uncomfortable with the idea of working out during pregnancy. However, there are many exercises that pregnant women can safely do. By being in good shape during pregnancy, she is likely to have an easier labor and get back into shape more quickly after giving birth.^{7,26,27}

Benefits of exercise to healthy, pregnant women have been greatly appreciated, it helps in tolerating labor pain emotionally and physically, increases muscular strength decreases chances of unhealthy weight gain, quicker recovery from child birth to pre-pregnancy weight, reduces incidence of hemorrhoids, varicose veins, low backache and fatigue causations.^{8,28,29}

According to a survey the half of the entire population of women's who undergo pregnancy suffer back ailment. More than two-third of pregnant women's experience low backache. The incidence of low backache during pregnancy is thought to be about 50 percent. Rates range from 25% to 90% with most studies estimating that 50% of pregnant women will suffer from low backache one third of them will suffer from severe pain, which will reduce their quality of life²⁸. Low backache usually begins between the 20th and 28th week of gestation, however it way has an earlier onset. The study aimed to give the quality of life of women without low backache among the antenatal mothers.⁹

While thinking for a solution for this, investigator heard about backstretch exercise which can produce added effect in the progress of the labor. The pelvic tilt helps to ensure that the lower back does not ache too much and this exercise is relieving ligament pain during pregnancy. During antenatal period, the occurrence of low backache disorder could have global consequence involving physical, psychological and social impact among women and unborn children^{30,31,32,33}. The main objective of our study was to assess the effectiveness of back stretch exercise on low backache among antenatal mothers (28weeks-40weeksof gestation) admitted in MGMCRI at Puducherry.

Objectives:

- To assess the level of low backache among antenatal mothers.
- To evaluate the effectiveness of backstretch exercise on low backache among antenatal mothers.
- To find the association between the level of low backache among antenatal mothers with the selected demographic variables.

Hypotheses

Based on the objectives of the study the following hypothese have been formulated for the purpose of the study

- H₁ – There is a significance difference in the level of low backache during 29 weeks to 40 weeks of gestation among antenatal mothers after backstretch exercise.

➤ H₂ – There is a significant association between the level of low backache during 29 weeks to 40 weeks of gestation with selected demographic variables.

In this study, the literature review helped to gain deeper insight into the research problems and into the different methods of exercise techniques that reduces the low backache among antenatal mothers. There is a different significant factor that influences low backache. Very limited studies have been found on the problem. Hence we selected the present study for investigation.

3. MATERIALS AND METHODS

A quantitative research approach and true experimental research (two groups' pre and post-test) design was used for this study. The study was conducted in antenatal ward of MGMCRI at Pillaiyarkuppam, Puducherry. Inclusion criteria for the sample were antenatal mothers with low backache (29 weeks to 40 weeks of gestation), antenatal mothers with single fetus and antenatal mothers willing to participate. Exclusion criteria were antenatal mothers who are having pregnancy related complication like abruptio placenta, pregnancy induced hypertension, GDM etc, antenatal mothers who were admitted for elective LSCS and antenatal mothers who are not able to communicate in English and Tamil.

Sixty samples with low backache were selected by simple random sampling technique (Lottery Method). Thirty in group I (Experimental) received back stretch exercise and thirty in group II (control) has received routine care. The tool was developed based on review of literature, opinion from experts in the field of obstetrics and gynaecology. It consisted of two parts. Part A: consisted of socio demographic variables which include age, religion, occupation, education, family income, type of family, diet, residential area, gestational age, duration of hospitalization, gravida, experience of low backache. Part B: consisted of standardized tool called as Eric.L.Lin low backache scale is used to assess the backache among antenatal mothers. Numerical low backache scale gives the scoring range from 1 to 10. Its start from absence of pain to worst pain experienced.

The reliability of the tool for the present study was established by Karl Pearson's Correlation Coefficient method. The reliability of the tool has been found to be very high. In pre-test demographic variables was collected by using structured interview schedule and the level of low backache assessed by Eric.L.Lin low backache scale during motion, standing and sitting. Backstretch exercise given to the experimental group. Gentle Spine Movements: Mother should sit upright in 90 degree and gentle turn right and left side alternative for 5 minutes. Cat – cow: Mother should be in the table – top position, hand should be directly under the shoulder and knees directly under the hip. While inhale gently rise the head and chest forward. While exhale bringing chin towards chest for 5 minutes. Repeat each step for 3 times. Backstretch exercise was continued for 3 days morning and evening. It is technique to reduce the level of low backache, gentle spine movements. In post-test level of low backache was assessed with same Eric.L.Lin low backache scale by the 4th day. Scoring interpretation of Eric.L.Lin Low Backache Scale

SCORE	DESCRIPTION
0	Absence of Pain
1-3	Mild Pain
4-6	Moderate Pain
7-9	Severe Pain
10	Worst Pain

Ethical Approval:

The study protocol was approved by Institutional Human Ethical Committee (IHEC). Informed consent has been obtained from all the samples. The confidentiality of samples data was strongly assured.

4. DATA COLLECTION PROCEDURE

The investigator has introduced her to the participants; the objectives of the study were explained. After explaining the procedure, the investigator obtained an informed consent from all the samples. A separate place was selected for interview and subjects were made comfortable and relaxed. The data collection was carried out in the following steps.

Step - I: Demographic variables are collected using interview schedule from all the samples.

Step – II: (PRE-TEST) Assess the level of low backache by using Eric.L.Lin low backache scale during motion, sitting and standing.

Step – III: (Intervention) Backstretch Exercise

Gentle Spine Movements: Mother should sit upright in 90 degree and gentle turn right and left side alternative for 5 minutes.

Cat – cow: Mother should be in the table – top position, hand should be directly under the shoulder and knees directly under the hip. While inhale gently rise the head and chest forward. While exhale bringing chin towards chest for 5 minutes. Repeat each step for 3 times. Backstretch exercise was continued for 3 days.

Step – IV:(POST-TEST) Level of low backache was assessed with same Eric.L.Lin low backache scale by the 4th day

The data obtained were compiled and analyzed by using descriptive and inferential statistics. The level of significance adopted was 0.001.

5. RESULTS

Participants age majority of the mothers 33(55.5%) belongs to 21-25 years, in religion most number of samples belongs 49(81.7%) to Hindu, regarding the occupation majority number of samples 52 (86.8%) belongs to housewife, most number of samples 36(60.0%) belongs to moderate worker. Regarding the income most number of samples 27(45%) belongs to Rs 5001-10,000. In family size majority number of samples 44 (73.3%) belongs to joint family. Regarding the type of diet, majority number of samples 59(98.3%) belongs to non-vegetarian, from the residential the area majority number of samples 47(78.3%) belongs to urban area, in gestational age majority number of samples 29 (48.3%) belongs to 37- 40 weeks. Regarding the duration of hospitalization, most number of samples 32 (53.3%) belong to one week, with the gravid most number of samples 36(60.0%) belongs to primi. Regarding the experience of low backache 49 (81.66%) belongs to Sometime and taking any measures to reduce backache 47 (78.3%) belongs to no.

Level Of Low Backache Among Antenatal Mothers In Pre – Test And Post – Test By Using Eric.L. Lin Low Backache Scale

Table (1):

shows the level of low backache in group I and group II among antenatal mothers in pre – test and post – test during motion, standing and sitting by using Eric.L.Lin low backache scale

n=60

Position	Level of pain	Pre -test				Post- test			
		Group I		Group II		Group I		Group II	
		N	%	N	%	N	%	N	%

Motion	Mild (1-3)	5	16.7	15	50	16	53.3	1	3.3
	Moderate (4-6)	22	73.3	14	46.7	14	46.7	24	80
	Severe (7-10)	3	10	1	3.3	0	0	5	16.7
Standing	Mild (1-3)	2	6.7	4	13.3	5	16.7	0	0
	Moderate (4-6)	23	76.7	24	80	25	83.3	25	83.3
	Severe (7-10)	5	16.7	5	6.7	0	0	5	16.7
Sitting	Mild (1-3)	0	0	5	16.7	3	10	2	6.7
	Moderate (4-6)	14	46.7	17	56.7	25	83.3	9	30
	Severe (7-10)	16	53.3	8	26.7	2	6.7	19	63.3
TOTAL		30	100	30	100	30	100	30	100

Effectiveness Of Backstretch Exercise On Low Backache Between Group I And Group Ii During Pre-Test And Post Test

Table (2):

shows the effectiveness of backstretch exercise on low backache in group I and group II among antenatal mothers in pre – test and post – test pre-test mean value during motion, standing and sitting

Pre test		Mean	Median	IQR	Mann Whitney test	p-value
Pain during motion	Group I	4.73	5	(4, 5)	424.5	0.697
	Group II	3.93	3.5	(4, 6)		
Pain during standing	Group I	5.47	5.5	(5, 6)	375.5	0.249
	Group II	4.77	5	(5, 6)		
Pain during sitting	Group I	6.37	7	(6, 7)	427.5	0.731
	Group II	5.57	6	(5, 7)		
Group I (Experimental Group)		Mean	Median	IQR	Wilcoxon test	p-value
Pain during motion	Pre test	4.73	5	(4, 5)	4.944	<0.001
	Pos test	3.5	3	(3, 4)		
Pain during standing	Pre test	5.47	5.5	(5, 6)	4.916	<0.001
	Pos test	4.2	4	(4, 5)		
Pain during sitting	Pre test	6.37	7	(6, 7)	4.964.	<0.001
	Pos test	4.73	5	(4, 5)		
Group II (Control Group)		Mean	Median	IQR	Wilcoxon test	p-value
Pain during motion	Pre test	3.93	3.5	(4, 6)	-1.393	0.164
	Pos test	5.1	5	(4, 6)		
Pain during standing	Pre test	4.77	5	(5, 6)	-3.357	0.001
	Pos test	5.67	6	(5, 6)		
Pain during sitting	Pre test	5.57	6	(5, 7)	-2.714	0.007
	Pos test	6.5	7	(6, 8)		

Posttest		Mean	Median	IQR	Mann Whitney test	p-value
Pain during motion	Group I	3.5	3	(3, 4)	142.5	<0.001
	Group II	5.1	5	(4, 6)		

Pain during standing	Group I	4.2	4	(4, 5)	137.5	<0.001
	Group II	5.67	6	(5, 6)		
Pain during sitting	Group I	4.73	5	(4, 5)	163	<0.001
	Group II	6.5	7	(6, 8)		

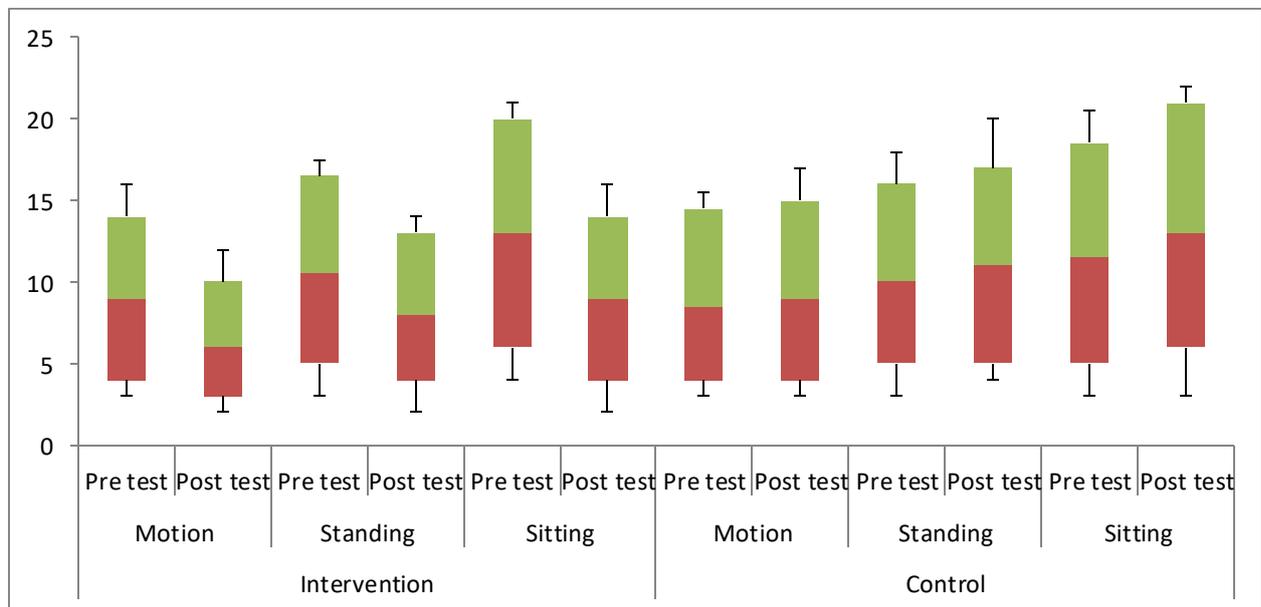


FIGURE 1: shows the effectiveness of backstretch exercise on low backache in group I and group II among antenatal mothers in pre – test and post – test pre-test mean value during motion, standing and sitting

Table 2 and Figure 1: shows the effectiveness of backstretch exercise on low backache in group I and group II among antenatal mothers. In pre – test median level of backache during motion, standing and sitting with both groups, there was no significant difference between the two group low backache level during motion, standing and sitting with obtained Mann Whitney test values 424.5, 375.5 and 427.5 respectively at p value (<0.001).

After intervention to the experimental group by comparing pre and post test median value with Wilcoxon test it was statistically significant at p value (<0.001). The result shows that backstretch exercise was effective in reducing low backache among antenatal mothers during motion, standing and sitting.

In post – test median level of back pain during motion, standing and sitting with both groups, there was significant difference between the two group low back pain level during motion, standing and sitting with obtained Mann Whitney test values 142.5, 137.5 and 163 respectively at p value (<0.001).

The result shows that backstretch exercise was effective in reducing low backache for antenatal mothers during standing, sitting and motion. **Hence the stated hypotheses(H₁) was accepted.**

Association Between The Pre-Test Level Of Low Backache Among Antenatal Mothers With Selected Demographic Variables

Association between the pre-test levels of low backache during motion, standing and sitting with selected demographic variables of the antenatal mothers. By using chi-square

test, it was evidenced that there was no significant association between the level of pain with experience of low backache among the antenatal mother at p value <0.05. **Hence, the stated Hypothesis (H₂) was rejected.**

Implication Of The Study:

Nursing Praticce

1. The nurses can assess the level of low backache with the uses of Eric.L.Lin low backache scale.
2. Understand the importance of backstretch exercise as an adjunct to pharmacological therapy.
3. Use this exercise among the antenatal mothers during 29 weeks-40 weeks of gestation.

Nusring Administration

1. The nurse administrator can organize in service education on the management of minor ailments during pregnancy including low backache and encourage nurses about this backstretch exercise.
2. Provide facilities for teaching these exercise to antenatal mothers in the hospital.

Nursing Research

The same study can be done on large sample for better generalization.

Limitations

- ❖ Study period was limited to six week.
- ❖ Sample size was limited to 60, 30 samples in experimental group and 30 samples in control group.
- ❖ Study population was limited to antenatal mothers with low backache admitted at MGMCRI.

Recommendation

- ✚ More studies can be conducted in reduction of low backache with different complementary and alternatives modalities to establish a rightful place in antenatal care.
- ✚ Studies can also be done to evaluate the effectiveness of backstretch exercises on labour and delivery outcomes.

6. CONCLUSION

The study concluded that back stretch exercise is effective on reduction of low backache among antenatal mothers 29 weeks to 40 weeks of gestation.

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