

EFFECTIVENESS OF BACK STRETCH EXERCISES ON BACK PAIN AMONG ANTENATAL MOTHERS

Laxmi Jha Thakur¹, Jyoti Arora², Ekjot Kaur³ and Gopal Singh Charan*⁴

¹PhD Scholar, Tantia University, Sri Ganganagar, Rajasthan.

²Professor, Tantia University, Sri Ganganagar, Rajasthan.

³Tutor, Institute of Nursing, University Regional Centre, Goindwal Sahib, Tarn-Taran, Punjab.

⁴Associate Professor, SGRD College of Nursing, SGRDUHS, Amritsar, Punjab.

Received date: 23 December 2022

Revised date: 13 January 2023

Accepted date: 03 February 2023

*Corresponding Author: Gopal Singh Charan

Associate Professor, SGRD College of Nursing, SGRDUHS, Amritsar.

ABSTRACT

Introduction: A woman's body undergoes profound physiological changes during pregnancy. It does not impact the cardiovascular, endocrine, or urinary systems, but it does involve muscular and skeletal problems with a predetermined effect on the skeletal system. Various hormone changes due to increased body mass, size, and uterine position contribute to a shift in the center of gravity, resulting in an increase in static and dynamic force affecting the skeletal system. **Materials and Methods:** A quasi-experimental design was adopted to assess the effectiveness of back stretch exercises on back pain among antenatal mothers. A total of 160 antenatal mothers (80 antenatal mothers in the experimental and 80 antenatal mothers in the control group) were involved through purposive sampling that met inclusion criteria. The data were collected from antenatal mothers using baseline information proforma and standardized research instrument Numeric rating pain scale. The researcher demonstrated back stretch exercises for 20 minutes and a return demonstration was done by the third-trimester antenatal mothers. In the control group as per conventional methods. The investigator conducted the post-test by visual analog pain scale for both groups. Informed consent was obtained. Confidentiality and anonymity were maintained during and after data collection. The data were analyzed using IBM SPSS version 26. **Results:** The study revealed that mean pain scores in posttest were 4.787 ± 1.489 and 2.676 ± 1.133 in control and experimental group. The mean difference was 2112 and obtained t-value was 8.571 which was more than table value (1.96). The calculated p-value was < 0.001 which was highly significant. Therefore, we concluded that with back stretch exercise intervention, mean back pain scores in posttest (control and experimental group) were significantly different. The intervention was significantly effective in decline the level of back pain among antenatal mothers. **Conclusion:** The study concluded that the back stretch exercises found significantly effective to reduce pain of antenatal mothers. The implementation of the back stretch exercises among antenatal mothers may be done in maternal health OPD for better management of backache during pregnancy.

KEYWORDS: Antenatal mothers, back stretch exercises, pain.

INTRODUCTION

A woman's body undergoes profound physiological changes during pregnancy. It does not impact the cardiovascular, endocrine, or urinary systems, but it does involve muscular and skeletal problems with a predetermined effect on the skeletal system. Various hormone changes due to increased body mass, size, and uterine position contribute to a shift in the center of gravity, resulting in an increase in static and dynamic force affecting the skeletal system. Recommended

exercise gets the heart pumping, and the blood supply manages weight increase and keeps ready muscles for labor and delivery without extra physical stress for mother or baby.^[1-2]

Childbirth is a life-altering experience for women and their families. It is the most exciting period of expectation and fulfillment in a woman's life and it is a unique natural gift to women. Childbirth experience is consistently described as a significant event of powerful

psychological importance in a woman's life.^[3] Today government of India and many agencies-WHO, UNICEF, RCH, MCH, and NRHM, are conducting national health programme in India to prevent the morbidity and mortality of maternal and safe motherhood.^[4]

Pregnancy-related low back pain (PLBP) is a common problem in pregnant women during pregnancy. Low back discomfort affects up to 70% of pregnant women at some time throughout their pregnancy. Pregnant women's pain will get more intense as their gestational age increases. It will impact their everyday lives, sleep, and other aspects, lowering their quality of life throughout pregnancy.^[5]

While pondering a solution, investigators learned that backstretch exercises may have a positive impact on the progress of labour. The pelvic tilt ensures that the lower back does not suffer excessively, and this exercise alleviates ligament discomfort during pregnancy. Therefore, the investigator was motivated to conduct this inquiry by the factors mentioned. Therefore, the purpose of this study was to investigate the efficacy of back stretching activities on prenatal mothers' back pain.

Objectives

1. To assess the Pretest levels of back pain among antenatal mothers in experimental and control group.
2. To implement of the back stretch exercise among antenatal mothers in experimental group.
3. To assess the Posttest levels of back pain and evaluate the effectiveness of back stretch exercises on back pain among antenatal mothers in experimental and control group.

MATERIAL AND METHODS

A quasi-experimental design was adopted to assess the effectiveness of back stretch exercises on back pain among antenatal mothers. The study was carried out at Antenatal OPD, Jan Seva Hospital, Sri Ganganagar, Rajasthan. A total of 160 antenatal mothers (80 antenatal mothers in the experimental and 80 antenatal mothers in the control group) were involved through purposive sampling that met inclusion criteria. The data were collected from antenatal mothers using baseline information proforma and standardized research instrument Numeric rating pain scale. It ranges from 0-10. The subjective pain score was further categorized in 4 categories. The levels of pain were as follows; no pain (0), mild (1-3), moderate (4-6) and severe pain (7-10).

The pretest was conducted for both groups. Then in the experimental group, the investigator explained to the antenatal mothers in the third trimester that back stretch exercises would gradually reduce back pain. The researcher demonstrated back stretch exercises for 20 minutes and a return demonstration was done by the third-trimester antenatal mothers. In the control group as

per conventional methods. The investigator conducted the post-test by visual analog pain scale for both groups. Informed consent was obtained. Confidentiality and anonymity were maintained during and after data collection. The data were analyzed using IBM SPSS version 26.

RESULTS

Table 1: Baseline information of antenatal mothers in experimental and control group. N=160.

S. No.	Variables	Experimental (n=80)		Control (n=80)	
		f	%	f	%
1.	Age (years)				
	18 – 25	17	21.25	18	22.5
	26 – 30	38	47.5	41	51.25
	31 – 35	25	31.25	21	26.25
2.	Education				
	Primary educated	8	10	10	12.5
	Secondary & higher secondary	36	45	32	40
	Graduate or above	36	45	38	47.5
3.	Job status				
	Government/private job	17	21.25	17	21.25
	Self-employment	20	25	21	26.25
	Housewife	43	53.75	42	52.5
4.	Monthly family income				
	5000-10000 Rs.	12	15	11	13.75
	10,001-20,000 Rs.	23	28.75	21	26.25
	Above 20,000 Rs.	45	56.25	48	60
5.	Religion				
	Hindu	67	83.75	67	83.75
	Muslim	8	10	9	11.25
	Other	5	6.25	4	5
6.	Residence				
	Town	45	56.25	52	65
	Urban	5	6.25	3	3.75
7.	Gravida				
	Primigravida	28	35	27	33.75
	Multi gravida	52	65	53	66.25
8.	Previous history of backache				
	Yes	29	36.25	25	31.25
	No	51	63.75	55	68.75
9.	Previous exposure of back stretch				
	Yes	26	32.5	23	28.75
	No	54	67.5	57	71.25
10.	Source of information				
	Healthcare professionals	50	62.5	49	61.25
	Mass media	16	20	16	20
	Others	14	17.5	15	18.75

Table 2: Levels of pain in pretest and posttest among antenatal mothers. N=160.

Levels of Pain	Experimental group (n=80)		Control group (n=80)	
	Pretest f(%)	Post test f(%)	Pretest f(%)	Post test f(%)
No pain	00	00	00	00
Mild pain	17 (21.25)	62(77.5)	14(17.5)	18(22.5)
Moderate pain	37(46.25)	18 (22.5)	40(50)	51(63.75)
Severe pain	26(32.5)	00 (00)	26(32.5)	11(13.75)

Table-3: Mean difference of pretest and posttest back pain scores among antenatal mothers in experimental group. N=80.

Test	Pain score	Mean difference	Obtained t-value	Table t-value	p-value
Pretest	5.425±1.867	2.75	5.840	1.96	<0.001**
Post test	2.675±1.133				

NB: df= 79, **=Significant at 0.01 level

Table-4: Mean difference of pretest and posttest back pain scores among antenatal mothers in control group. N=80.

Test	Pain score	Mean difference	Obtained t-value	Table t-value	p-value
Pretest	5.387±1.775	0.60	0.021	1.96	0.983 ^{NS}
Post test	4.787±1.489				

NB: df= 79, NS=non-significant at 0.05 level

Table-5: Mean difference of posttest back pain scores among antenatal mothers in experimental and control group. N=160.

Group	Pain score	Mean difference	Obtained t-value	Table t-value	p-value
Experimental	2.675±1.133	2.112	8.571	1.96	0.001 ^{**}
Control	4.787±1.489				

NB: df= 158. Significant at 0.01 level

DISCUSSION

Our finding shows that pretest in the experimental group, 46.25% had moderate pain, and 32.5% had a severe level of pain. Only 21.25% of mothers had mild pain during the antenatal period. While after the implementation of back stretch exercises, most mothers (77.5%) had mild pain levels, and 22.5% had moderate pain. A supported study by Omoke NI et al. (2021)^[7] revealed that out of the 138 women, the pain was mild, moderate and severe in 30.4%, 63.0% and 6.5% of them, respectively.

Our result reveals that in the pretest in the control group, 32.5% had severe level of pain. Only 17.55% of mothers had mild pain during the antenatal period. While without any implementation of back stretch exercises, 63.75% had moderate level of pain, and 22.5% had mild pain. and 13.75% had severe pain in posttest.

The mean pain scores were 5.425±1.867 and 2.676±1.133 in pretest and post test in experimental group. A pre-experimental study was conducted by Sethi, D., & Barnabas, S. (2016)^[8] among pregnant women in first stage of labour pains admitted in labour room of a selected hospital, Ludhiana, Punjab, India. The calculated pre-test mean pain score was 5.83. It was nearly similar to our findings.

In a study, Omoke NI et al. (2021)^[7] revealed that out of the 138 women, the mean pain intensity on NRS was 4.3±1.36. Our finding was also communicated that the mean pain scores were 5.425±1.867.

In this context, Korovessis P et al. (2019)^[9] conducted a study among 167 singleton pregnant women. The VAS score averaged 4.2 ± 2.8 during prepartum. This finding was comparable to our research findings.

Our finding shows that the mean difference was 2.75 and obtained t-value was 5.840, which was more than table value (1.96). The calculated p-value was < 0.001 which was highly significant. In a study by Sethi, D., & Barnabas, S. (2016)^[8] explored that pre-test mean score was 5.83 and post-test mean score was 3.75 which was found that back massage was statistically highly

significant at p<0.01 level. This research was in support of our study.

This study reveals that the mean back pain scores of the antenatal mothers in control group has been expressed. The values of mean pain scores in pretest and posttest were 5.389±1.775 and 4.787±1.489 respectively. The mean difference was 0.60 and obtained t-value was 0.021 which was less than table value (1.96). The calculated p-value was 0.983 which was not significant. Therefore, we concluded that without any intervention mean back pain scores in pretest and posttest were insignificantly different. In this reference, a study by Chandrasekharan B et al. (2020)^[10] highlighted a significantly increased pain score in the control group (P = 0.025). Our study explored that pain level was not decreased among the study subjects; study by Bijithra Chandrasekharan et al. also stated that pain increased instead of declined.

The current results show that mean pain scores in posttest were 4.787±1.489 and 2.676±1.133 in control and experimental group. The mean difference was 2112 and obtained t-value was 8.571 which was more than table value (1.96). The calculated p-value was < 0.001 which was highly significant. Therefore, we concluded that with back stretch exercise intervention, mean back pain scores in posttest (control and experimental group) were significantly different. The intervention was significantly effective in decline the level of back pain among antenatal mothers. In this context, a study by Chandrasekharan B et al. (2020)^[10] highlighted a remarkable back pain reduction among the antenatal mothers after Back stretch exercise in the study group. The post-test mean intensity of back pain was lesser than the pre-test mean intensity of back pain (48.73 < 54.83) among mothers of the study group (P≤0.001). This finding was in support of our research findings.

In another clinical trial Yousefabadi SR et al. (2019)^[11] compared the effect of back-stretch exercise and usual care on Back pain. A Quebec BP questionnaire was used to assess the pain. The study reported that Back pain was significantly decreased in the intervention

group at $P < 0.001$ level. The present study also reported that intervention significantly reduced back pain.

A study by Sethi, D., & Barnabas, S. (2016) [8] also highlighted that back massage was statistically highly significant at $p < 0.01$. This research was in support of our study.

CONCLUSION

As applications in this field is remodeling every day or as per the findings of evidence-based practices, we can say that Nursing professionals are the major roots for providing expected, promotive, curative and rehabilitative services to people and society which comprises non pharmacological interventions. Thus, it was concluded that the back stretch exercises found significantly effective to reduce pain of antenatal mothers. The implementation of the back stretch exercises among antenatal mothers may be done in maternal health OPD for better management of backache during pregnancy.

Source of Funding: None.

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Bryndal A, Majchrzycki M, Grochulska A, Glowinski S, Seremak-Mrozikiewicz A. Risk factors associated with low back pain among A group of 1510 pregnant women. *Journal of personalized medicine*, 2020 Jun 15; 10(2): 51.
2. Usman MI, Abubakar MK, Muhammad S, Rabiou A, Garba I. Low back pain in pregnant women attending antenatal clinic: The Aminu Kano teaching hospital experience. *Annals of African medicine*, 2017 Jul; 16(3): 136-41.
3. Coussons-Read ME. Effects of prenatal stress on pregnancy and human development: mechanisms and pathways. *Obstetric medicine*, 2013 Jun; 6(2): 52-7.
4. Birsner ML & Bannerman CG .Physical activity and exercise during pregnancy and postpartum period. COG committee on Obstetric practice. The American college of Obstetricians and Gynecologists, 2020; 135: e178-188.
5. Malouf R, Redshaw M. Specialist antenatal clinics for women at high risk of preterm birth: a systematic review of qualitative and quantitative research. *BMC Pregnancy and Childbirth*, 2017 Dec; 17(1): 1-7.
6. Xue X, Yang X, Deng Z, Chen Y, Mao X, Tu H, Zhou L, Li N, Sun J, He Y, Zhang S. Effect of Kinesio taping on Pregnancy-related low back pain: A protocol for systematic review and meta-analysis. *Plos one*, 2022 Jan 20; 17(1): e0261766.
7. Omoke NI, Amaraegbulam PI, Umeora OU, Okafor LC. Prevalence and risk factors for low back pain during pregnancy among women in Abakaliki, Nigeria. *Pan African Medical Journal*, 2021 May 26; 39(1).
8. Sethi D, Barnabas S. A pre-experimental study to evaluate the effectiveness of back massage among pregnant women in first stage of labour pains admitted in labour room of a selected hospital, Ludhiana, Punjab, India. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 2017 Jan 1; 6(1): 76-84.
9. Korovessis P, Antonaki R, Zacharatos S, Syrimpeis V. Low back pain induces disability of women in primary uncomplicated pregnancy. *Clinical Journal of Obstetrics and Gynecology*, 2019; 2: 101-106.
10. Chandrasekharan B, Vincent SC, Arulappan J. Effectiveness of back-stretch exercise on back pain among pregnant women. *International Egyptian Journal of Nursing Sciences and Research*, 2020 Jun 8; 1(1): 1-5.
11. Yousefjadi SR, Sarani A, Arbabshastan ME, Adineh HA, Shahnavazi M. The effect of exercise on back pain and lordosis in the second trimester of pregnancy. *Drug Invention Today*, 2019 Sep 1; 11(9).