



E-ISSN: 2664-2301
P-ISSN: 2664-2298
www.gynaecologicalnursing.com
IJOGN 2025; 7(1): 126-130
Received: 25-12-2024
Accepted: 29-01-2025

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A study to evaluate the effect of routine practice of selected antenatal exercises on the outcome of labour among primigravida mothers attending maternity services at CHC Katwara Dahod district

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DOI: <https://www.doi.org/10.33545/26642298.2025.v7.i1b.195>

Abstract

Background: Pregnancy demands significant physiological and psychological adaptations. Antenatal exercises play a critical role in supporting these transitions, promoting maternal and fetal well-being, and facilitating smoother labour outcomes.

Objectives: This study aimed to evaluate the effect of routine antenatal exercises on the outcome of labour among primigravida mothers attending maternity services at CHC Katwara, Dahod District. Specific objectives included assessing labour outcomes among experimental and control groups, comparing outcomes between these groups, and determining associations between labour outcomes and selected demographic variables.

Materials and Methods: A quasi-experimental research design was employed with a quantitative approach. Sixty primigravida mothers were selected through probability sampling and randomly divided into experimental (n=30) and control (n=30) groups. Data were collected using structured post-delivery assessments, APGAR scores, and demographic questionnaires. Analysis involved descriptive and inferential statistics, including chi-square and Fisher's exact tests.

Results: The findings demonstrated a significant difference in labour outcomes between groups. In the experimental group, 53% experienced normal vaginal deliveries, compared to only 13% in the control group. Caesarean sections were significantly higher in the control group (53%) compared to the experimental group (7%). Moreover, the experimental group had a shorter duration of labour, lower pain scores, fewer complications, more stable maternal conditions postpartum, earlier initiation of breastfeeding, and better neonatal outcomes reflected in higher APGAR scores. Statistically significant associations were observed between labour outcomes and selected demographic variables, particularly weight and gestational weeks.

Conclusion: Routine practice of selected antenatal exercises among primigravida mothers positively influences labour outcomes, promoting vaginal delivery, reducing complications, enhancing maternal recovery, and improving neonatal health. Incorporating antenatal exercise programs into routine prenatal care is highly recommended for better maternal and child health outcomes.

Keywords: Antenatal exercises, outcome of labour, primigravida mothers, maternity services

Introduction

Background of the study

Pregnancy is a unique and special experience for every mother-to-be. It is a time that calls for extra care, as it involves the well-being of not just one, but two lives. Every physiological and psychological condition of the mother directly affects the growing foetus. As the foetus develops in the womb until birth, it relies entirely on the mother's body for oxygen, blood, and nutrients. This process demands many adaptations within the mother's body throughout the pregnancy.

Antenatal exercises play a vital role in maintaining good posture and proper breathing. These exercises help reduce the risk of complications during labour and promote overall health throughout pregnancy. They range from simple activities, such as walking, swimming, squatting, and gentle household movements, to exercises that may require professional guidance, like yoga and stretching.

Some key types of antenatal exercises include: Breathing awareness, Pelvic floor exercises, Transverse abdominal exercises, Foot and ankle movements, Pelvic rocking and tilting,

Kegel exercises.

Numerous studies recommend that women should either continue or begin antenatal exercises during pregnancy. These exercises offer a wide range of benefits, such as:

- Promoting healthy weight gain during and after pregnancy
- Improving sleep and reducing restlessness
- Lowering the risk of varicose veins
- Reducing swelling in the feet, ankles, and hands
- Alleviating anxiety and depression
- Preventing back pain
- Enhancing blood circulation
- Reducing the risk of high blood pressure-related complications.

Need of the Study

Pregnancy is a critical phase in a woman's life that requires comprehensive care to ensure the health and well-being of both the mother and the fetus. As the body undergoes numerous physiological and psychological changes, it becomes essential to adopt practices that support these transitions smoothly and safely.

Despite growing awareness, many pregnant women are still unaware of the significance and benefits of antenatal exercises. Lack of physical activity during pregnancy can lead to complications such as back pain, excessive weight gain, poor posture, fatigue, sleep disturbances, and increased risk of hypertension and gestational diabetes.

This study is needed to:

- Emphasize the importance of incorporating regular antenatal exercises during pregnancy.
- Educate pregnant women about safe and effective exercise practices that enhance their physical and mental well-being.
- Reduce the risks of pregnancy-related complications and improve maternal outcomes.
- Highlight the role of antenatal exercises in preparing the body for labour and ensuring a smoother postpartum recovery.
- Promote evidence-based practices among healthcare professionals and caregivers in prenatal care.

Objectives of the study

1. To evaluate the effect of antenatal exercises on the outcome of labour among primigravida mothers of the experimental group.
2. To evaluate the outcome of labour among primigravida mothers of the control group.
3. To compare the outcome of labour of primigravida mothers of the experimental and control group.
4. To find the association between the outcomes of labour with selected demographic variables of primigravida mothers of the experimental and control group.

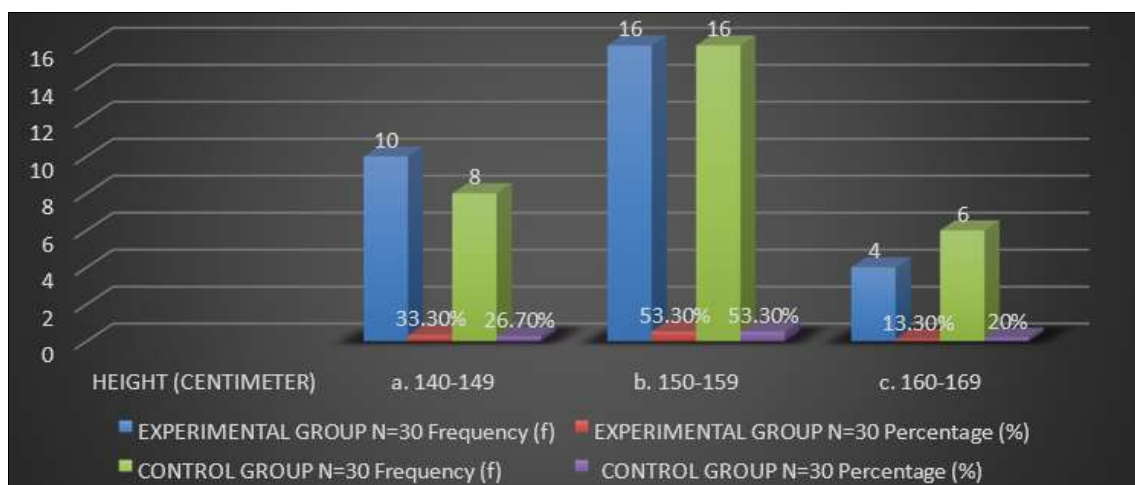
Methodology

This study employed a quantitative research approach with a quasi-experimental design. The target population comprised primigravida mothers attending maternity services at the selected Community Health Centre (CHC) in Katwara, Dahod. Participants were selected using a probability sampling technique and were randomly assigned to either the experimental group or the control group, with 30 mothers in each group, resulting in a total sample size of 60. A pilot study was conducted to assess the feasibility and reliability of the research tool. Data were collected using a structured post-delivery performance assessment, APGAR scores, and demographic variables. Data analysis utilized both descriptive and inferential statistical methods.

Major findings and results

Result revealed that majority of mothers in the experimental group (53%) had a vaginal delivery, followed by 33% who had a vaginal delivery with episiotomy, 7% had an instrumental delivery, and 7% underwent a caesarean section. In contrast, among the control group, 53% had a caesarean section, 13% had a vaginal delivery, 20% had a vaginal delivery with episiotomy, 7% had an instrumental delivery, and 7% underwent a vacuum-assisted delivery. The difference between the groups was statistically significant ($\chi^2 = 66.180$, $df = 4$, $p < 0.001$).

These findings are supported by a study conducted by A.K. Khatri *et al.* (2014), in which 74% of mothers in the experimental group had a normal delivery, while 26% underwent a caesarean section. In the control group, 38% had a normal delivery and 62% underwent a caesarean section.



Graph: Showing frequency and percentage-wise distribution of the height of mother in experimental and control groups.

Section II: Findings related to the comparison of the outcome of labour between the experimental and control group.

Table 1: Comparison of the outcome of labour of primigravida mothers of experimental and control group.

S. No.	Outcome of labour	Experimental group	Control group	Chi square/ fisher's chi square	DF	P value
1.	Weight gain in 3rd trimester					
	Up to 2.9 kg	0	0	4.338	1	P=0.037 Significant
	3 to 4.9 kg	33%	20%			
	More than 5 kg	67%	80%			
2.	Type of delivery					
	Vaginal delivery	53%	13%	66.180	4	p<0.00 Significant
	Vaginal deliver y with episiotomy	33%	20%			
	Instrumental delivery	7%	7%			
	Vacuum assisted delivery	0	7%			
	Cesarean Section	7%	53%			
3.	Duration of labour if vaginal delivery					
	Less than 10 hours	33%	3%	42.881	3	p<0.001 Significant
	10 to 13:59 hours	40%	7%			
	14 to 17:59 hourd	3%	7%			
	More than 18 hours	17%	30%			
4.	If vaginal delivery, Pain score during labour					
	0 to 4	17%	0	12.432	2	P=0.0032 Significant
	5 to 7	43%	33%			
	8 to 10	33%	13%			
5.	Required analgesics					
	Yes	100%	100%	No statistics are computed because the variable, required analgesic is constant.		
	No	0	0			
6.	Complications during delivery					
	Prolonged labour	17%	30%	45.09	7	<0.001 Significant
	Abnormal uterine action	0	7%			
	Cord around neck	3%	10%			
	Cord prolapsed	0	3%			
	Mal presentation	10%	17%			
	Perineal tear	7%	10%			
	Fetal distress	7%	10%			
	Nil	57%	13%			
7.	Maternal condition after delivery					
	Stable	90%	60%	24.000	1	<0.001 Significant
	Unstable	10%	40%			
8.	Initiation of breast feeding					
	Immediate after delivery	73%	13%	94.512	3	<0.001 Significant
	Within an hour after delivery	13%	13%			
	Within 1-2 hours of delivery	14%	24%			
	After 2 hours of delivery	0%	50%			
9.	Birth injuries to newborn					
	Head injuries (Cephalhaemato ma)	0%	10%	34.526	5	<0.001 Significant
	Skin/subcutaneous tissue injuries	10%	20%			
	Visceral injuries	0%	0%			
	Still born	0%	7%			
	Null	80%	43%			
	Other	10%	20%			
10.	Oxytocin administration					
	< 5 unit	7%	3%	43.990	4	<0.001 Significant
	≥ 5 to < 10 unit	43%	13%			
	≥ 10 to	33%	24%			
	≥15 to < 20 unit	10%	33%			
	≥20 unit	7%	28%			
11.	APGAR Score at 1 minute					
	8 to 10	93%	60%	31	2	<0.001 Significant
	b. 5 to 7	7%	33%			
	c. <4	0%	7%			
12.	APGAR Score at 5 minute					
	a. 8 to 10	100%	80%	22.220	2	<0.001 Significant
	b. 5 to 7	0%	13%			
	c. <4	0%	7%			
13.	APGAR Score at 15 minute					
	a. 8 to 10	100%	90%	10.52	2	<0.001 Significant
	b. 5 to 7	0%	3%			
	c. <4	0%	7%			

Section III: Findings related to the association between the outcome of labour with selected demographic variables of the experimental and control groups**Table 2:** Association between the outcomes of labour with selected demographic variables of primigravida mothers of experimental and control group

S. No.	Demographic variable	Experimental Group			Control Group		
		Chi-square/ Feser's chi-square	DF	P value	Chi-square/Feser's chi-square	DF	P value
1.	Weight gain during 3rd trimester						
	Age in years	0.625	1	0.429	0.300	1	0.584
	Height in cm	1.706	2	0.426	4.594	2	0.101
	Weight in kg	2.312	2	0.315	8.589	3	0.035
	Occupation	1.667	1	0.197	3.606	1	0.058
	Weeks of gestation	1.003	3	0.800	4.762	3	0.190
2.	Type of delivery						
	Age in years	2.500	3	0.475	6.375	4	0.173
	Height in cm	8.325	6	0.215	7.708	8	0.462
	Weight in kg	11.688	6	0.069	10.895	12	0.538
	Occupation	0.556	3	0.907	3.317	4	0.506
	Weeks of gestation	18.625	9	0.029	11.964	12	0.449
3.	Duration of labour if vaginal delivery						
	Age in years	0.679	3	0.878	5.833	3	0.120
	Height in cm	4.054	6	0.669	11.278	6	0.08
	Weight in kg	6.038	6	0.419	7.037	9	0.633
	Occupation	2.215	3	0.529	2.657	3	0.448
	Weeks of gestation	11.422	9	0.248	4.213	6	0.648
4.	If vaginal delivery, Pain score during labour						
	Age in years	5.038	2	0.081	0.729	1	0.393
	Height in cm	4.792	4	0.309	1.342	2	.0511
	Weight in kg	10.283	4	0.036	3.733	3	0.292
	Occupation	6.048	2	0.049	0.525	1	0.469
	Weeks of gestation	4.402	6	0.622	0.117	2	0.943
5.	Complications during delivery						
	Age in years	2.492	5	0.778	8.775	7	0.269
	Height in cm	19.021	10	0.040	15.587	14	0.339
	Weight in kg	9.568	10	0.479	16.316	21	0.752
	Occupation	5.098	5	0.404	3.125	7	0.873
	Weeks of gestation	14.159	15	0.491	20.197	21	0.509
6.	Maternal condition after delivery						
	Age in years	2.222	1	0.136	0.0001	1	1.00
	Height in cm	1.250	2	0.535	1.094	2	0.579
	Weight in kg	1.451	2	0.484	1.579	3	0.664
	Occupation	0.370	1	0.543	0.433	1	0.511
	Weeks of gestation	2.549	3	0.466	6.389	3	0.094
7.	Initiation of breast feeding						
	Age in years	1.023	2	0.600	1.211	3	0.750
	Height in cm	2.599	4	0.627	12.881	6	0.050
	Weight in kg	1.174	4	0.882	9.779	9	0.369
	Occupation	1.212	2	0.545	6.346	3	0.096
	Weeks of gestation	10.932	6	0.091	6.188	9	0.721
8.	Birth injuries to new born						
	Age in years	0.139	2	0.933	8.654	4	0.070
	Height in cm	2.453	4	0.653	7.043	8	0.532
	Weight in kg	3.599	4	0.469	20.437	12	0.059
	Occupation	0.833	2	0.659	9.031	4	0.060
	Weeks of gestation	12.148	6	0.055	20.948	12	0.054
9.	Oxytocin administration						
	Age in years	1.677	4	0.795	2.711	4	0.607
	Height in cm	8.378	8	0.397	8.163	8	0.418
	Weight in kg	8.529	8	0.384	20.454	12	0.059
	Occupation	6.667	4	0.155	3.791	4	0.435
	Weeks of gestation	23.094	12	0.027	11.099	12	0.520
10.	APGAR Score at 1 minute						
	Age in years	0.089	1	0.765	1.300	2	0.522
	Height in cm	4.286	2	0.117	9.625	4	0.047
	Weight in kg	1.429	2	0.490	6.400	6	0.380
	Occupation	3.441	1	0.055	0.577	2	0.749
	Weeks of gestation	1.098	3	0.777	5.200	6	0.518

Conclusion

The findings of the study revealed a significant difference in labour outcomes between the experimental and control groups. This demonstrates that antenatal exercises positively influence the outcome of labour, supporting their effectiveness in promoting normal vaginal delivery and reducing the likelihood of medical interventions such as caesarean sections. These results highlight the importance of incorporating antenatal exercise programs into routine prenatal care for improved maternal and neonatal outcomes.

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How to Cite This Article

Hagavaniya AU, Lata KL. A study to evaluate the effect of routine practice of selected antenatal exercises on the outcome of labour among primigravida mothers attending maternity services at CHC Katwara Dahod district. *International Journal of Obstetrics and Gynaecological Nursing*. 2025; 7(1): 126-130.

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