



“Effectiveness Of Lamaze Breathing Techniques On Reduction Of Labor Pain During First Stage Of Labor Among Primigravida Mother In Selected District Hospital At Gorakhpur, Uttar Pradesh”

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Abstract: Labor pain is a major concern during childbirth, especially for primigravida mothers. This true experimental study evaluated the effectiveness of Lamaze breathing techniques in reducing labor pain during the first stage of labor. A total of 60 primigravida mothers admitted to a selected district hospital in Gorakhpur, Uttar Pradesh, were randomly assigned to experimental and control groups. The experimental group received Lamaze breathing training, while the control group received standard care. Pain intensity was measured pre- and post-intervention using the Wong-Baker FACES Pain Scale. Results showed a statistically significant reduction in pain levels in the experimental group post-intervention. The study also found associations between pain scores and selected demographic variables. Lamaze breathing proved to be an effective, safe, and low-cost method for managing labor pain, highlighting its relevance in routine obstetric care.

Index Terms: Lamaze breathing, labor pain, primigravida, non-pharmacological methods, Wong-Baker scale, maternal health

I. INTRODUCTION

“The pains of childbirth were altogether different from the enveloping effects of other kinds of pain. These were pains one could follow with one’s mind.

~Margaret Mead

Childbirth is a significant and transformative event in a woman’s life, often involving intense physical sensations and pain. The journey of childbirth is both a profound and challenging experience, especially for first-time mothers. One of the most intense aspects of this journey is labor pain, which can significantly impact a mother’s experience and emotional well-being. While medical interventions are often available to manage pain, there is growing interest in non-pharmacological methods that empower women to take an active role in their childbirth experience. Among these, Lamaze breathing techniques have been widely recognized for their potential to alleviate labor pain through focused breathing and relaxation. This study seeks to fill that gap by exploring how these techniques can influence pain perception during the critical first stage of labor.

Through a careful assessment of labor pain levels before and after the application of Lamaze breathing techniques, this research aims to shed light on their true impact. Moreover, by examining the relationship between post-intervention pain levels and various demographic factors, the study will offer deeper insights into how different backgrounds and circumstances might shape the effectiveness of these techniques.

First-time mothers, known as primigravida, typically experience high levels of anxiety and fear due to the unknown aspects of the labor process and the pain associated with it (Jones et al., 2019). Effective pain management during labor is crucial for maternal well-being and has positive effects on birth outcomes and the bonding between mother and infant (Simkin & Bolding, 2004). Lamaze breathing techniques are recommended as a non-pharmacological approach to ease labor pain by encouraging relaxation and reducing tension.

PROBLEM STATEMENT

An experimental study on effectiveness of lamaze breathing techniques on reduction of labor pain during first stage of labor among primigravida mother in selected district hospital at Gorakhpur, Uttar Pradesh.

OBJECTIVES OF THE STUDY

1. To assess the pre-test and post-test level of labor pain among sample
2. To compare the pre-test and post-test labor pain scores between the experimental and control groups.
3. To determine the effectiveness of lamaze breathing techniques on reduction of labor pain.
4. To findout the association between post test level of labor pain with their selected demographic variables among sample.

II. MATERIAL AND METHODS

Research approach: The quantitative research approach adopted to compare the effectiveness of lamaze breathing technique on reduction of labor pain among primigravida mother.

Research design: A true experimental two group pre-test post-test research design was adopted.

Research setting: The setting is selected as female district hospital located in Gorakhpur, Uttar Pradesh based on feasibility, permission and availability of sample based on inclusion and exclusion criteria.

Research variables: Here in this study, research variable was to check the effectiveness of lamaze breathing technique.

Population: Targeted population was all the primigravida mothers (20-35 years). The accessible population refers to primigravida mothers who are admitted in female district hospital, Gorakhpur.

Sample Size: The total sample size was 60 which comprises of 30 experimental group and 30 control group in selected hospitals.

Sampling technique: In the present study simple random sampling was adopted to allocate the subjects into two groups.

CRITERIA FOR SELECTION OF SAMPLE:

Inclusion criteria:

- Primigravida mothers who are in the first stage of labor at a gestational age of 37-42 weeks (full term).
- Mothers who are willing to participate in the study and provide informed consent.
- Mothers who are admitted in district hospital, Gorakhpur.

Exclusion criteria

- Mothers with high-risk pregnancies or medical conditions such as preeclampsia, eclampsia, gestational diabetes, etc.
- Mothers who are already practicing other pain management techniques or have received analgesics/epidural anesthesia prior to the study.
- Mothers with cognitive impairments or psychological conditions that may hinder their ability to follow instructions.
- Mothers who are undergoing induction of labor or planned cesarean section.
- Mothers who have a history of respiratory problems or other conditions that may contraindicate the use of breathing techniques.
- Mothers who are multigravida

III. TOOLS AND TECHNIQUES

Section A: It comprises of demographic variables including items related to age, gender, monthly income, etc and obstetrical variable including duration, current gestational age etc.

Section B: The tool is to identify the level of pain through Wong Baker's faces pain scale score.

CONTENT VALIDITY: A total 5 experts consisting of 2 Doctors-gynecologist and 3 Nursing Experts have validated tool.

RELIABILITY: Reliability of the scale is a standardized tool with established test-retest reliability coefficients exceeding 0.80, indicating a high degree of consistency in pain measurement.

DATA COLLECTION:

Permission to conduct the study was obtained from the Ethical Review Committee of Guru Shri Gorakshnath College of Nursing, Gorakhpur, along with approval from the Chief Medical Officer and the concerned gynecologist at female District Hospital, Gorakhpur. The data collection began on 5th April 2025. A list of eligible primigravida mothers (aged 20–35 years) admitted in the labor ward was prepared a day in advance by the investigator. After selecting the participants using a simple random sampling technique, the investigator introduced herself to each subject, explained the study in detail, and provided the patient information sheet in the local language. Informed consent was obtained from all participants. Baseline demographic and obstetric data were collected, and the pre-test assessment of labor pain was conducted using the Wong-Baker FACES Pain Rating Scale. The participants were then divided into two groups: the experimental group received Lamaze breathing technique training, were guided to use these techniques during contractions; the control group received standard routine care without any specific breathing instruction. Pain levels were reassessed post-intervention during the active phase of the first stage of labor. This intervention and assessment process continued throughout labor until transition to the second stage. On the third post-delivery day, an opinionnaire was administered to both groups to evaluate the perceived effectiveness of the Lamaze breathing techniques in reducing labor pain. Ethical principles such as informed consent, confidentiality, and the right to withdraw were strictly followed throughout the study.

DATA ANALYSIS:

The collected data was analyzed in relation to the objectives of the study using descriptive and inferential statistics.

- Frequency and percentage distribution were used to analyze demographic and obstetric variables such as:
Age, Education, Marital age, Religion, Occupation, Type of family, Place of residence, Antenatal care visits, Pre-existing health conditions, Duration of the first stage of labor.
- Pre-test and post-test pain scores were measured in both the experimental group (Lamaze breathing technique) and the control group (routine care) using the Wong-Baker FACES Pain Scale.
- The mean and standard deviation of pre-test pain scores and post-test pain scores were calculated for both groups.

- The mean difference (Post-test minus Pre-test) was computed to assess the change in pain levels before and after the intervention.
- To determine the effectiveness of Lamaze breathing techniques, the following inferential statistics were applied:
- Independent t-test was used to compare the post-test pain scores between the experimental group and the control group to evaluate the difference in effectiveness between Lamaze breathing and routine care.
- The Chi-square test was used to assess the association between post-test pain scores and selected demographic variables.
- A master data sheet was prepared by the investigator to record and organize all data collected from participants.
- The results were presented using tables, bar diagrams, to support statistical interpretation and visualization.

IV. RESULTS AND DISCUSSION

SECTION I- A : FINDING RELATED TO DEMOGRAPHIC VARIABLE

- Among 60 sample of 11.6% sample were in the age of <20 years, 73.3% of the sample were in the age group of 21-25 years, 15.0% of the sample were in the age group of 26-30 years, 00 % of the sample were in the age group of 31-35 years.
- Among 60 sample 21.6% of sample were no formal education , 40.0% of sample were intermediate and 38.3% of sample were graduated and 00% of the sample were post-graduation or more.
- Among 60 sample 20.0% of sample were <10,000, 53.3% of sample were 10,000-30,000 , 26.6% of sample were 30,000-50,000 and 0% of sample were >50,000.
- Among 60 sample 16.6% of sample were <18 yrs. , 60.0% of sample were from 19-22 yrs, 21.6% sample were 23-27 yrs. and >27 yrs. sample were 00%
- Among 60 sample 76.6% of sample were hinduism, 00% of sample were christianity, 23.3% of sample were muslim and 00% of sample were other.
- Among 60 sample 81.6% of sample were housewife , 00% of sample were unskilled labor , 16.6% of sample were skilled labor and 6.6% sample were professional/semi-professional.
- Among 60 sample 36.6% sample were nuclear family, 61.6% sample were joint family, 0% sample were extended family, 0% sample were single parent family.
- Among 60 sample indicates that 31.6% sample were urban, 68.3% sample were rural, 0% were semi-urban, 0% were semi-rural.

B : OBSTETRICAL VARIABLE

- Among 60 sample of 66.6% sample were 10-12hrs.,33.3% sample were 9-11 hr.,0% sample were 6-8hr.,0% sample were 3-5hr.
- Among 60 sample 0% sample were less than 28 weeks,40.0% sample were 29-36 weeks,60.0% sample were 33-36 week,0% sample were 37 week and above
- Among 60 sample that 93.30% sample were No, 6.60% sample were Yes
- Among 60 sample 100% sample were No, 0% sample were Yes
- Among 60 sample 3.3% sample were None, 10.0% sample were 1-2,80.0% sample were 3-4, 6.6 sample were 5 or above.
- Among 60 sample 96.6% sample were None, 1.6% sample were Diabetes,0% sample were Hypertension, 1.6% sample were Thyroid disorder,0% are other.
- Among 60 sample 100% sample were No, 0 sample were Yes.
- Among 60 sample indicates that 98.3% sample were No, 1.6% sample were Yes.

SECTION II- FINDING RELATED TO PRE-TEST LEVEL OF PAIN

- Among 30 sample experimental group , 00 % of sample were mild pain scale score with frequency 0, 00% of sample had moderately pain scale score with frequency 0 and 100% of sample were severe pain scale score with frequency 0.
- Among 30 samples, the mean value is 8.4 with Standard Deviation 1.216.
- Among 30 sample control group, 00% of sample were mild pain scale score with frequency 0,00% of sample had moderately pain scale score with frequency 0,100% sample had severe pain scale score with frequency 30.
- Among 30 sample,the mean value is 8.3 with standard deviation 0.
- These results are in agreement with previous research. For example, Patel et al. (2019) conducted a quasi-experimental study in Gujarat and reported that the mean labor pain score in their experimental group decreased from 7.5 ± 0.9 to 4.3 ± 1.0 after applying breathing techniques, while the control group showed negligible difference.

SECTION III- FINDING RELATED TO POST-TEST LEVEL OF PAIN

- Among 30 sample experimental group , 20% of sample had mild pain scale score with frequency 6, 73.3% of sample had moderately pain scale score with frequency 22 and 6.6% of sample had severe pain scale score with frequency 2.
- Among 60 samples, the mean value 4.37 with Standard Deviation 1.216.
- Among 30 sample control group, 00% of sample were mild pain scale score with frequency 0,00% of sample had moderately pain scale score with frequency 0,100% sample had severe pain scale score with frequency 30.
- Among 30 sample,the mean value is 8.3 with standard deviation 0.

- Similarly, Kumar & Devi (2021) found a significant reduction in mean pain scores from 8.1 ± 0.8 to 5.0 ± 1.2 in the experimental group, with the control group maintaining a steady mean around 7.9 ± 1.1 . These consistent findings across studies reinforce that Lamaze's breathing technique is a beneficial non-pharmacological intervention that can significantly reduce labor pain among primigravida mothers.

SECTION IV- FINDING RELATED TO COMPARE PRE AND POST-TEST SCORE OF EXPERIMENTAL AND CONTROL GROUP

Comparison of pre-test and post-test score of experimental and control group was done, it is found that mean value is 8.4 with standard deviation 1.216 in pre-test experimental group, mean value is 4.37 with standard deviation 1.216 in post-test experimental group which shows high statistically significant mean difference of 4.03. Research hypothesis H1 is accepted.

In control group, mean value is 8.3 with standard deviation 0 in pre-test control group, mean value is 8.3 with standard deviation 0, which shows less statistically significant mean difference of 0.

S.N	GROUP		MEAN	STANDARD DEVIATION	MEAN DIFFERENCE
1.	Experimental group	Pre-test	8.4	1.216*	4.03*
		Post-test	4.37		
2.	Control group	Pre-test	8.3	0	0
		Post-test	8.3		

SECTION IV- EFFECTIVENESS OF LAMAZE BREATHING TECHNIQUE AMONG EXPERIMENTAL GROUP COMPARED TO CONTROL GROUP

- Among 30 sample, that mean value is 8.4 with standard deviation 1.216 in pre-test experimental group, mean value is 4.37 with standard deviation 1.216 in post-test experimental group with estimated paired t-value of 17.7 which is statistically significant at $p > 0.05$. It shows that Lamaze breathing technique is effective in reducing the labor pain among primigravida mother.
- Among 30 sample, In control group mean value is 8.3 with standard deviation 0 in pre-test and mean is 8.3 with standard deviation 0 in post-test which is statistically not significant at $p < 0.05$.
- These findings are supported by previous research. For instance, Patel et al. (2019) reported a similar significant difference, where the mean pain score in the experimental group dropped from 7.5 ± 0.9 to 4.3 ± 1.0 , with a t-value of 7.89, demonstrating the effectiveness of breathing techniques.

S.N	GROUP		MEAN	STANDARD DEVIATION	CALCULATE D t-value	CRITICAL t-value
1.	EXPERIMENTAL GROUP	PRE TEST	8.4	1.216	17.7*	2.045*
		POST TEST	4.37			
2.	CONTROL GROUP	PRE TEST	8.3	0		
		POST TEST	8.3			

ASSOCIATION BETWEEN THE PRE-TEST LEVEL OF KNOWLEDGE WITH SELECTED DEMOGRAPHIC VARIABLES

Chi-square was used to identify the association between level of knowledge with their selected demographic variables. Significant association was found between the sample with their demographic variables such as education, types of family and family income. The table reveals that there is no association found between the sample with their selected demographic variables and obstetrical variables such as age, religion, occupation, gestational age and gestational age.

CONCLUSION: A study was aimed to assess the level of labor pain among primigravida mother and provide intervention regarding Lamaze breathing technique among primigravida mother . It was concluded that in pre-test among 30 sample experimental group , 20% of sample had mild pain scale score with frequency 6, 73.3% of sample had moderately pain scale score with frequency 22 and 6.6% of sample had severe pain scale score with frequency 2. Among 30 sample control group pre- test, 00% of sample were mild pain scale score with frequency 0,00% of sample had moderately pain scale score with frequency 0,100% sample had severe pain scale score with frequency 30.

Among post-test 30 sample experimental group , 20% of sample had mild pain scale score with frequency 6, 73.3% of sample had moderately pain scale score with frequency 22 and 6.6% of sample had severe pain scale score with frequency 2. Among 30 sample control group post-test, 00% of sample were mild pain scale score with frequency 0,00% of sample had moderately pain scale score with frequency 0,100% sample had severe pain scale score with frequency 30.

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