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Effectiveness of Lamaze Breathing on Comfort, Labour Pain, and Anxiety Among Primigravida Mothers During the Active Stage of Labour: A Quasi-Experimental Study

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ABSTRACT

Introduction*: During childbirth a woman is more vulnerable than any other time in her life. The cause for this vulnerability mainly occurs due to Labour pain and anxiety. pain associated with labour is unique and it has been accepted as a necessary part of childbirth. The concept of painless childbirth gave rise to many scientific discoveries and researches. As a result, different non- pharmacological methods were tried out to relieve pain. Among them, one of the practical methods that can be used is Lamaze breathing technique. Lamaze method is a 'tool' that helps the women to maintain control during uterine contraction with relaxation. Quasi experimental design was used to assess the effectiveness of Lamaze breathing exercise on comfort, labour pain and anxiety.* ***Methodology:*** *After obtaining the permission from the Head of the department gynaecology study was conducted among 100 samples on primi mothers, 50 each in experimental and control groups who met the*

inclusion criteria. Purposive sample technique was used for selecting the sample. Data was Collected using demographic variables and comfort level were measured by General comfort questionnaire level of pain was assessed by using Numerical pain scale and anxiety assessed by using Hamilton anxiety scale score of both groups. Lamaze breathing exercise was taught in the experiment. ***Results****: Pre-intervention, both groups reported similar discomfort, pain, and anxiety levels, with no significant demographic differences. Post-intervention, the experimental group showed marked improvements: comfort increased from 0% reporting high pre-intervention to 24% post-intervention, pain levels decreased with 76% reporting moderate and 24% mild pain, and anxiety significantly reduced with 70% reporting mild and 30% mild to moderate anxiety. Conversely, the control group showed minimal changes across all parameters. Statistical analysis confirmed significant improvements in the experimental group across comfort (t=16.68, p=0.001), Labour pain (t=25.37, p=0.001), and anxiety (t=24.13, p=0.001).* ***Conclusion:*** *It was conducted that Lamaze breathing exercise could be used in enhancing comfort, reducing perception of pain and anxiety.*

KEYWORDS

Lamaze Breathing, Primigravida mother, Labour pain, Comfort, Anxiety.

INTRODUCTION

Childbirth, also known as Labour and delivery, is the culmination of a pregnancy, marking the transition from pregnancy to parenthood as a mother brings a new life into the world. Typically occurring at around 37 to 42 weeks of pregnancy, childbirth can vary greatly from one woman to another and from one pregnancy to the next, influenced by numerous factors including health, genetics, and individual circumstances [1].

The childbirth process is divided into three stages: the first stage involves the onset of contractions and the dilation of the cervix; the second stage is the actual delivery of the baby; and the third stage is the delivery of the placenta. Each stage comes with its own physical and emotional challenges, requiring different levels of support and medical attention [2].

Women approach childbirth in a variety of ways based on personal preferences, health needs, and cultural practices. Many women may opt for a natural birth, often choosing to forgo medications in favor of alternative pain management techniques like breathing exercises, movement, and water immersion [3]. Others may choose medical interventions to help manage pain, such as epidural anesthesia, which numbs the lower body, allowing the mother to remain awake and alert while reducing discomfort. Some women may require a cesarean section (C-section), a surgical procedure to deliver the baby through an incision in the abdomen, which may be recommended for various reasons, including breech positioning, fetal distress, or complications with the mother's health [4].

Regardless of the approach, the primary goal of childbirth is to ensure the safety and well-being of both the mother and the baby. Healthcare professionals, including obstetricians, midwives, and nurses, play a crucial role in providing guidance, monitoring progress, and intervening when necessary to support a safe and healthy delivery. Emotional support from partners, family, and doulas can also be vital, offering comfort, encouragement, and advocacy during this transformative experience [5].

Childbirth, though physically demanding, is also a deeply meaningful and emotional journey, marking the start of a new chapter in life for the family. Each birth story is unique, and the experience can have lasting impacts on the parents' lives, shaping their perspectives and relationships with each other and their newborn child [6].

STATEMENT OF THE PROBLEM

Effectiveness of Lamaze breathing on comfort, labour pain and anxiety among Primigravida mothers during

the active stage of labour in Maternity Tertiary Care Centre, Chennai.

AIMS

1. To assess the Pretest level of comfort, labour pain and anxiety among Primi gravida mothers in experimental and control groups.
2. To evaluate the effectiveness of Lamaze breathing on comfort, labour pain and anxiety among Primigravida mothers in Experimental groups.
3. To compare the pre and post-test levels of comfort, labour pain and anxiety among Primi gravida mothers in experimental and control groups.
4. To associate the post-test level of comfort, labour pain and anxiety with selected demographic variables in the experimental group.

HYPOTHESIS

- **H1:** There will be a statistically significant difference in the level of comfort, labour pain, and anxiety among primi gravida mothers during the active stage of labour experimental and control groups.
- **H2:** There will be a statistically significant association between the level of comfort, labour pain, and anxiety among primi gravida mothers during the active stage of labour with their selected sociodemographic variables among experimental and control groups.

METHODOLOGY

A Quasi experimental research design with control group and experimental group was undertaken to assess the effectiveness of Lamaze breathing on comfort Labour pain and anxiety among primigravida mothers during the active stage of Labour. 50women were selected in the control group and 50 were in the experimental group selected by purposive sampling technique, data were collected over 4 weeks**.** The study's objective was elucidated to the participant. Consent was gained from the participants once they were provided with all the necessary information. The participants were divided into an experimental group and a control group. Pretest questionnaires assessing sociodemographic characteristics, Labour comfort, Labour pain, and anxiety were administered to both groups, with a duration of 10-15 minutes. The experimental group was taught Lamaze breathing exercise methods, while the control group received regular care. Post-interventional assessment of birthing comfort, Labour pain, and anxiety was conducted during 8 cm dilatation in both the experimental and control groups.

DESCRIPTION OF TOOL-

Section - A – **Socio-demographic questionnaires** which include age of the mothers, type of family, educational status, occupational status, monthly income, place of living, religion, dietary pattern, attitude towards current pregnancy and physical activity.

Section - B – Obstetrical variables which include gestational age in weeks, presence of family members during labour and duration of first stage of labour.

Section - C – Childbirth Comfort Questionnaire. The CCQ employs a 5-point Likert scale, with a range of scores from 1 to 5. Higher scores on this scale correspond to increased levels of comfort.

Section - D – Numerical Pain Scale. The Numerical Pain Scale (NPS) is a commonly employed instrument for evaluating the severity of pain. The scale normally spans from 0 to 10, with 0 indicating the absence of pain and 10 representing the most severe agony imaginable.

Section - E – Hamilton Anxiety Scale. It comprises 14 items, each rated on a 5-point scale (ranging from 0 to 4), where higher scores signify higher levels of anxiety.

RESULT

The intervention significantly enhanced comfort levels in the experimental group compared to the control group. Initially, both groups had similar mean comfort scores; however, post-intervention, the experimental group's mean comfort level significantly increased from 31.48 to 46.76, a percentage increase from 44.97% to 66.80%. In contrast, the control group showed minimal change, with a comfort score increasing only slightly from 31.96 to 32.94, reflecting a modest percentage gain from 45.66% to 47.06%. Regarding pain levels, the experimental group experienced a substantial reduction post-intervention, contrasting sharply with the control group, which saw minimal change. Initially, both groups reported similar pain levels, but post-intervention, the experimental group's mean pain scores decreased significantly from 7.38 to 3.98, translating to a percentage reduction from 73.80% to 39.80%. The control group's pain score slightly decreased from 7.12 to 6.84, a modest percentage reduction from 71.20% to 68.40%. Regarding anxiety levels, both groups started with similar scores, but post-intervention, the experimental group showed a significant decrease in anxiety levels from 28.40 to 14.90, a percentage reduction from 50.71% to 26.61%. In contrast, the control group's anxiety remained relatively unchanged, decreasing slightly from 29.34 to 28.38, a minimal percentage reduction from 52.39% to 50.68%. Overall, the intervention had a profound impact on improving comfort, reducing pain, and lowering anxiety levels in the experimental group compared to the control group, as evidenced by significant changes in mean scores and percentages post-intervention.

TABLE 1 - The Effectiveness of Lamaze Breathing Over Comfort Score

GROUP	**Group**				**Mean difference**	**Student paired t-test**
	Pretest		Post-test			
	Mean	SD	Mean	SD		
Experimental(n=50)	31.4	3.	46.7	4.	15.28	**t=16.68 p=0.001***(S)**
	8	75	6	80		
Control(n=50)	31.9	3.	32.9	3.	0.98	**t=1.85 p=0.06NS)**
	6	**62**	**4**	**63**		

The experimental group, there was a significant increase in comfort scores, moving from a mean of 31.48 with a standard deviation (SD) of 3.75 pretest to 46.76 with an SD of 4.80 posttest, resulting in a mean difference of 15.28. This change was statistically significant (t=16.68, p=0.001***).

TABLE 2 - The Effectiveness of Lamaze Breathing Over Labour Pain Score

Group	Pretest Mean	Pretest SD	Post-test Mean	Post-test SD	Mean Difference	t-value	p-value	Significance
Experimental (n=50)	7.38	0.8	3.98	0.6	3.4	25.37	0.001	S
Control (n=50)	7.12	1.0	6.84	1.0	0.28	1.79	0.07	NS

The experimental group's mean pain score decreased to 3.98 (SD=0.62), whereas the control group's mean was higher at 6.84 (SD=1.49), with a mean difference of 2.86. This change was statistically significant (t=25.37, p=0.001***), indicating a substantial reduction in pain for the experimental group compared to the control group.

TABLE 3 - The Effectiveness of Lamaze Breathing Over Anxiety Score.

Group	Pretest Mean	Pretest SD	Post-test Mean	Post-test SD	Mean Difference	t-value	p-value	Significance
Experimental (n=50)	28.4	3.0	14.9	2.04	0.94	1.46	0.15	NS
Control (n=50)	29.34	3.43	28.38	3.91	13.48	21.62	0.001	S

Post-intervention, the experimental group's mean anxiety score dramatically decreased to 14.90 (SD=2.04), while the control group remained high at 28.38 (SD=3.91). The mean difference post-test was 13.48, with a significant t-value of 21.62 (p=0.00), indicating a substantial reduction in anxiety for the experimental group compared to the control.

DISCUSSION

The present study revealed that there were no significant differences in pretest comfort levels between the experimental and control groups, with the majority of participants in both groups reporting low levels of comfort (72% in the experimental group and 64% in the control group), and none reporting high comfort. Similarly, the study indicated no significant differences in pretest pain levels; a substantial majority of both groups experienced severe pain (80% in the experimental group and 78% in the control group), with no reports of no pain or mild pain. Furthermore, the analysis of pretest anxiety levels showed no significant differences between the groups. No participants reported mild anxiety. The experimental group predominantly experienced moderate to severe anxiety (66%), while the control group included a higher percentage of participants with extremely severe anxiety (38%). This data suggests that both groups entered the study with similarly high levels of discomfort and anxiety, albeit with variations in the intensity of anxiety.

These findings were supported by a study conducted by Subasri, S et al. [7]**,** which revealed that 62.5% and 60% of primigravida mothers had low comfort in the pretest. Additionally, the study found no significant differences in pretest comfort, pain, and anxiety levels between the experimental and control groups of primigravida mothers. In another study conducted by Baljon et al. [8]**,** it was discovered that 78.9% and 80.6% of participants in both the experimental and control groups experienced intense Labour pain. Furthermore, there were no notable disparities in pain levels before the study between the two groups. These findings align with the present study, indicating a consensus among studies.

The present study showed that the application of Lamaze breathing techniques significantly improved comfort, pain, and anxiety levels in the experimental group compared to the control group. Post-intervention, no participants in the experimental group reported low comfort, with 76% indicating a moderate level of comfort and 24% a high level. This was a stark improvement over the control group, where 64% still experienced low comfort. Additionally, none of the experimental group reported severe pain post-intervention, a significant change from the 80% who initially did; instead, 76% described their pain as moderate and 24% as mild. In contrast, the control group saw 70% continue to experience severe pain. Furthermore, anxiety levels markedly improved in the experimental group, with 70% reporting only mild anxiety and 30% mild to moderate anxiety, whereas the control group still exhibited higher anxiety levels, with 50% experiencing moderate to severe anxiety and 36% extremely severe anxiety. These results highlight the effectiveness of Lamaze breathing techniques in significantly enhancing participant comfort and reducing pain and anxiety levels.

The effectiveness of Lamaze breathing in reducing Labour pain during the first stage among primigravida mothers was demonstrated by a study conducted by Hertati [9]. The study found a significant difference between the pre-test and post-test in the experimental and control groups, supporting these findings. A further study conducted by Alzurfi, N. M [10, 11] discovered that the combination of Lamaze breathing instruction and nursing care resulted in higher rates of natural birth, shorter Labour duration, less pain, and reduced postpartum bleeding in first-time mothers. These findings provide further support for the present study.

The present study showed that the intervention significantly enhanced comfort levels in the experimental group compared to the control group. Initially, both groups had similar mean comfort scores; however, post-intervention, the experimental group's mean comfort level significantly increased from 31.48 to 46.76, a percentage increase from 44.97% to 66.80%. In contrast, the control group showed minimal change, with a comfort score increasing only slightly from 31.96 to 32.94, reflecting a modest percentage gain from 45.66% to 47.06%.

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This finding was validated by a study conducted by Kavitha J et al. [12], which revealed a noteworthy disparity in pain levels between the experimental and control groups. The post-test pain levels were significantly lower in the experimental group, indicating a greater reduction in pain compared to the control group.

CONCLUSION

Lamaze breathing training combined with nursing intervention was effective for enhancing comfort, Labour pain and reduction of anxiety in primigravida mothers and deserves to be promoted and applied in clinical practice.

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