

Impact of Lamaze Breathing on Childbirth Comparison Between Primigravid and Multigravid Women

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ABSTRACT

Introduction: The most basic function of life, breathing promotes awareness, attentiveness, alertness, and focus in women. The Lamaze technique's goals are to promote, maintain, and protect a healthy pregnancy and a safe delivery. In this study, primigravid and multigravida women were compared with respect to the effects of the Lamaze technique on duration of labor and neonatal outcomes.

Methodology: Primigravid and multigravid women who met the eligibility criteria were randomized into intervention and standard care groups in a parallel group randomized controlled study. After 36 weeks of pregnancy, the researcher introduced the women in the experimental groups the Lamaze techniques. The length of labor and neonatal outcomes between the primigravid and multigravid women in the intervention group and the standard care group were used to measure the result.

Results: The mean duration of labor was shorter in the intervention groups. The Mann-Whitney U test indicated a statistically significant difference in the duration of labor between women who practiced Lamaze breathing during pregnancy and those who did not ($U = 5742, p < 0.05$).

Conclusion: The present study concludes that Lamaze techniques during the antenatal period shortens labor duration and accelerates labor progress, hence facilitating natural childbirth.

Keywords: Lamaze Breathing, antenatal women, breathing, neonatal outcome, duration of labor, SDG 3

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INTRODUCTION

Pregnancy, childbirth, and the postpartum period are transformative experiences that mark a significant milestone in a woman's life. While they are often filled with joy and anticipation, they also present a range of challenges and complexities, particularly in the context of the global burden of maternal health and the pursuit of Sustainable Development Goals (SDGs). Among the various aspects of maternal care, the management of labor pain and ensuring safe childbirth remain paramount concerns worldwide.

Globally every minute, a woman dies in pregnancy or during childbirth.¹ Addressing maternal health is not only a fundamental human rights issue but also a critical component of achieving the Sustainable Development Goals (SDGs) set forth by the United Nations.² One approach to improving maternal outcomes and promoting positive birth experiences is through the utilization of Lamaze breathing techniques during pregnancy and childbirth. The significance of Lamaze breathing extends beyond individual childbirth experiences; it intersects with broader global health agendas, including the Sustainable Development Goals (SDGs). SDG 3, "Ensure healthy lives and promote well-being for all at all ages," specifically targets maternal mortality reduction and universal access to reproductive healthcare services.³ By equipping women with effective coping mechanisms during pregnancy and labor, Lamaze techniques contribute to SDG 3's objectives by promoting safer childbirth practices and improving maternal health outcomes worldwide.

Breathing changes in regularity, complexity, and location to communicate our emotions. Having both autonomic and conscious control, breathing is one of life's most basic functions.⁴ Lamaze breathing techniques emerge as a valuable resource in promoting maternal well-being and achieving positive birth outcomes. Rooted in the philosophy of empowering women and advocating for natural childbirth, Lamaze techniques encompass a range of breathing exercises, relaxation methods, and coping strategies aimed at enhancing women's ability to navigate the challenges of labor with confidence and resilience.⁵

As Lamaze techniques align with the philosophy of natural childbirth, it emphasizes the body's ability to give birth without unnecessary medical interventions. For women who desire a natural birth experience, Lamaze provides the skills and mindset necessary to achieve this goal.

While Lamaze promotes natural childbirth, it also acknowledges that every birth experience is unique. The techniques taught in Lamaze classes can be adapted to different birthing environments and circumstances, giving women the flexibility to cope with unexpected challenges during labor.⁶

According to a study, practicing Lamaze breathing can make a mother feel less painful during a uterine

contraction and shorten the length of labor.⁷ Lamaze breathing has been shown in a systematic review to be beneficial in improving the process and results of childbirth, and it is advised that this technique be included into routine clinical practice.⁸ Breathing exercises have been suggested as an effective way to manage labor pain (88.2 ± 6.3) and reduce the duration of the second stage of labor (369.6 ± 92.0) according to a study done in Turkey.⁹ Lamaze method, considered as comrades of women in labour room conquers labour pain through relaxation, distracting attention from pain and interfering with painful sensations thus letting women to experience enriching birthing experience.¹⁰

As Lamaze technique informs about various aspects of childbirth, women can make informed decisions and feel more prepared to handle unexpected situations that may arise during labor.¹¹ Overall, while Lamaze techniques are valued by many expectant mothers and healthcare providers, their specific impact on labor outcomes remains subject to debate and further research. Overall, Lamaze techniques offer pregnant women valuable tools and skills to navigate the challenges of labor and childbirth, contributing to a more positive and empowering birthing experience. Thus, purpose of the study was to assess how long labor took and how well newborns fared among primigravid and multigravid women using the Lamaze technique.

METHODOLOGY

Study Design: To achieve the research's goal, a single centre parallel group randomized controlled trial was adopted. This study is reported using CONSORT 2010 checklist.

Ethical Considerations: Approval from Institutional Ethics committee was obtained (IEC212/2012), followed by CTRI registration (CTRI/2016/02/006621). Upon being recruited for the trial, participants were provided with information about the study and offered the option to accept or decline enrolment. Consent form submitted by the researcher was signed by willing participants.

Study Setting, Participants & Randomization: The study was conducted in a secondary care hospital that had a highly skilled and equipped obstetrics unit. The investigation was conducted in labor rooms and antenatal outpatient clinics. If a participant satisfied the following requirements, they were recruited. (a) reaching 36 weeks of gestation; (b) carrying a single fetus (c) vertex presentation and (d) experiencing no serious pregnancy-related problems. The eligible women were contacted by the research recruiter to participate. Following confirmation, stratified block randomization was used to allocate patients to intervention and standard care groups; parity status was taken into account in this process.

Intervention: The researcher's targeted intervention was the Lamaze breathing technique. Lamaze

breathing techniques focuses on rhythmic breathing patterns and relaxation techniques to promote a sense of control and reduce tension during contractions. There are several types of breathing techniques associated with Lamaze, one of the most common is slow-paced breathing, also known as "cleansing breaths." This involves taking slow, deep breaths in through the nose and exhaling slowly through the mouth. Some variations include patterned breathing, where the woman breathes in for a count and out for a count, and accelerated breathing, which involves shorter, faster breaths during intense contractions.¹² The researcher developed an informational video on Lamaze techniques, which was shown to women in intervention groups, encouraging them to use these techniques on a daily basis. Along with daily fetal movements count charting, instructions were supplied to keep track of exercises done at home and were monitored for compliance at their weekly prenatal visits. Women were given specific instructions to follow during the active part of the first stage of labor under the supervision of labor room nurses. Women in the standard care groups received routine antenatal care as prescribed by the health care providers. The nurses served as observers and kept an eye on all four groups during the active stage of labor.

To verify the scientific authenticity of the instruments, content validity was employed, and the tool's reliability was assessed using an equivalency test.

Data Collection: Data Collection: Information was gathered at two different stages: during enrolment, demographics and baseline characteristics were recorded; after delivery, outcome measurements were seen and documented (Partograph) and newborn details were recorded from patients' medical records.

Data Analysis: The Statistical Package for the Social Sciences (SPSS, version 16.0) was utilized for the analysis of the data. For statistical significance, a P value of less than 0.05 was considered.

RESULTS

When the women were first recruited for the study, the intervention and the primigravid and multigravid standard care groups had similar baseline characteristics.

Most of the primigravid and multigravid women who were included in the intervention belonged to the Hindu religion and were part of joint families. Thirteen (10%) of the intervention group's pregnant women and twenty-one (15%) of the standard care group's women experienced medical illnesses such as hypothyroidism (7), GDM (12), anemia (5), and hypertension (11). Only 13% of the multigravida women in the intervention group had medical conditions such as hypothyroidism, gestational diabetes mellitus, or anemia during their current pregnancy.

The Mann-Whitney U test indicated a statistically significant difference in the duration of labor between women who practiced Lamaze breathing during pregnancy and those who did not ($p < 0.05$). This suggests that the utilization of Lamaze breathing techniques during pregnancy may be associated with alterations in the duration of labor. Women who were engaged in Lamaze breathing experienced a shorter duration of labor compared to those who did not adopt these techniques. This finding underscores the potential impact of Lamaze breathing as a preparatory method during pregnancy, influencing the progression of labor. However, no significant difference was found in gestational age of women at birth (Table 1).

The results of the independent samples t-test revealed no statistically significant difference in the birth weights of newborns between primigravid and multigravid mothers who practiced Lamaze breathing ($p > 0.05$). This suggests that the use of Lamaze breathing techniques during childbirth did not have a discernible impact on newborn birth weight in our sample.

Table 1: Comparison of variables among Primigravid and Multigravid Women in the Intervention and the Standard Care Group (N=515)

Variable	Intervention Group (n=267) (Mean ± SD)	Standard Care Group (n=248) (Mean ± SD)	P value
Gestational age at birth (in weeks)			
Primigravida (n=261)	39.23 ± 0.73	39.17 ± 0.74	>0.05*
Multigravida (n=254)	39.05 ± 0.80	39.15 ± 0.76	>0.05*
Duration of Labor (in hours)			
Primigravida (n=261)	5.51 ± 2.00	7.23 ± 3.68	<.01*
Multigravida (n=254)	3.36 ± 1.58	4.28 ± 2.18	<.01*
Birth Weight (in gm)			
Primigravida (n=261)	3020±369	3104±353	>0.05#
Multigravida (n=254)	2987±368	3157±401	>0.05#

* Mann - Whitney U test applied; # unpaired t test applied

DISCUSSION

A study by Chuntharapat et al. found that practicing yoga reduces the length of the first stage of labor as well as the overall time of labor.¹³ This finding was

consistent with the present study's finding that the mean duration of labor was significantly shorter in the intervention groups. A randomized controlled trial conducted in Tehran supports the present findings, which shows that the experimental group's ac-

tive phase duration was significantly shorter 254 (68.55) min than the control group's (312.07 (67.17) min).¹⁴ A second study confirms the findings, indicating that throughout the active stage ($p = .002$) and the second stage ($p < .001$) of labor prenatal yoga is associated with increased expectancies for outcomes and self-efficacy.¹⁵ Analysis from many trials indicates a statistically significant difference ($t = -8.11$, $p < 0.001$) in the mean latent phase duration between the experimental and control groups.^{14, 15,16,17} However, one study reported controversial findings that breathing exercises were not much effective in minimizing pain, anxiety as well as during of first stage of labour.¹⁸

Results of the present study reveals that babies weighing ≥ 2500 grams were more in the intervention groups after adjusting for parity. The number of newborns born weighing more than 2,500 grams was considerably greater among pregnant women who practiced yoga ($p = .01$), according to a study by Narendran et al.¹⁵ According to Sirohi et al., 85% of babies born to mothers who engaged in prenatal exercise had birth weights between 2,500 and 3,500 grams ($\lambda^2=4.023$, $p=.045$).^{19,20} Nonetheless, the quality of the evidence regarding newborn outcomes is lacking and requires further investigation.²¹

CONCLUSION

The current research concludes that the use of Lamaze techniques during the antenatal period shortens labor duration and accelerates labor progress, hence facilitating natural childbirth. Thus, this is the perfect moment to educate the mother about the physiological processes involved in pregnancy and labor so that she can be ready. Research indicates that Lamaze treatments are safe and effective during pregnancy.

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