

Evaluation of the effectiveness of selected intervention in reducing level of pain perception and birth experience among primi gravida mothers

Angel Rajakumari G^{*1}, Soli.T.K² and Malathy D³

¹Department of obstetrics and Gynecology, Annai Dora College of Nursing, Aundipatty, Tamilnadu, India

²Staff Nurse, King Saud Hospital, KSA

³Gogulam College of Nursing, Thiruvananthapuram, Kerala, India

*Correspondence Info:

Angel Rajakumari G

Professor,

Department of obstetrics and Gynecology,

Annai Dora College of Nursing,

Aundipatty, Tamilnadu, India

E-mail: angu318@gmail.com

Abstract

Aim: To evaluate the effectiveness of birth ball therapy in terms of level of pain perception and birth experience among primi gravida mothers.

Participants and setting: The study was conducted in Nirmala Hospital, in Suryapet, Telugana, India in with 700 annual births. The primi gravida mothers were recruited and were allocated by non-probability purposive sampling technique into the two arms of the study, but only 20 in study and 20 in control group participants.

Intervention: The study group received birth ball therapy was done using discomfort can often be helped by body positions that allow gravity to speed dilation, such as walking, squatting, kneeling forward on a chair or sitting on the birthing ball. The birth ball therapy was given by investigator for 20 minutes again the same step is repeated in a 10 minutes interval. Measurement and findings: In active stage of labour (3-6 cm of cervical dilatation) the women completed the demographic and obstetrical information and pain was measured by 0- 10 Modified combined numerical categorical pain intensity scale and labour outcome assessed by labour agency scale (LAS). This study revealed that there was high significant difference found in pain at $p < 0.001$ level between study and control group.

Conclusion: The study concluded that, clinical implementation of birth ball therapy usage during labour could be an effective non pharmacological intervention in reducing pain perception.

Keywords: Birth ball, Birth experience, Pain perception, first stage of labour, primi gravida mothers.

1. Introduction

Pregnancy is a unique, exciting and often joyous time in a woman's life, as it highlights the amazing creative and nurturing powers while providing a bridge to the future. Pregnancy and birth are tremendously powerful stages of development that bring a woman to motherhood, a couple, to family and a beautiful child into the world. Labour process may be viewed as a test of womanhood, a test of personal competence, a peak of experience, and the first act of motherhood. Labour process starts with the onset of regular uterine activity associated with effacement and dilatation of the cervix and descent of the presenting part through the cervix.[1]

Birthing ball is originally developed in 1963 and it is used as a physical therapy for the

neurodevelopment treatment. It was introduced as a childbirth tool in 1980 by Perez and Simkin, Perez in 2001 stated that the birthing ball was physically beneficial use during pregnancy and labor by producing optimal positioning and pain reduction during contraction while eliciting non habitual movement.[2]

Birthing ball is a large air filled rubber ball which is strong enough to support the weight of the mother. It helps in widen and flex the pelvic bone and joints and helps the baby to descent into birth canal more easily and also helps in the strengthening the muscles of the pelvic floor, which is responsible for the pushing stage of childbirth. The birthing ball can

facilitates positional changes and used as a comfort tool for women in labor.[3].

Birthing ball size that generally works with the laboring mothers is 65cm.the size was vary somewhat depend on the mother’s height. mother who are tall 5’10” or taller, may prefer larger ball of 75cm. the birthing ball should be large enough to sit and legs bent at 90 degree angle. And it can be easily clean up with soap and water. During labor, birthing ball really comes into its own, providing support and ease in discomfort. It may even hasten the delivery. The ball is easier to get onto and to rise from a regular chair, couch or the floor. It adapts to mothers needs accommodating variety of sitting, kneeling and squatting positions. Comfort and convenience is only the beginning, but other benefits include natural rhythm, readjustment, support, movement, alignment, assistance, relaxation and dilatation. A woman can sit on it and can rock and slightly bounce to reduce the perineal pressure. The mother can also lean over the ball, allowing the baby to hang down, in order to decrease any back pain or back labour.[4]

Sitting on the birthing ball encourage a natural swaying or rotation motion of the pelvis, promoting fetal descent. The ball provides perineal support without a lot of pressure and helps keeps fetus aligned in the pelvis. The sitting position assumed on the ball, similar to a squat widens the pelvis, helping to speed up the labor.[5]

2. Material and Methods

This was a randomized interventional study. The study was conducted in Nirmala Hospital, suryapet, Telagana India with 700 annual births. Formal approval was obtained from the institutional review board and from the labour room director of the Nirmala hospital suryapet to conduct the present study. Primi gravida mothers were recruited and were allocated by non probability sampling technique into the two arms of the study. Out of 40 primi gravida mothers, 20 of them were allotted to study group and 20 of them to control group participants completed. The inclusion criteria for sample selection includes primi gravida mothers at gestational age 37 to 40 weeks with initial cervical dilation>3cm with single fetes with cephalic presentation and who had normal vitality. The study group received birth ball therapy interventions. Each birth ball therapy lasted 20 minutes. Birth ball therapy was done using discomfort can often be helped by body positions that allow gravity to speed dilation, such as walking, squatting, kneeling forward on a chair or sitting on the birthing ball. This will help the baby move down in the pelvis faster and less painfully. Birthing ball helps to shorten the first stage of labour. As one sits

on the ball, they should move the hips in a circular motion. This allows the baby’s head to press against the cervix, which promotes dilation. In active stage of labour dilatation the women completed the demographic and obstetrical information and pain was measured by 0- 10 Modified combined numerical categorical pain intensity scale and child birth experience and labour outcome was assessed by using the modified labour agency scale (LAS). Demographic variables were computed by using descriptive statistics. Pain scale was analyzed by using inferential statistics to assess the effectiveness of birth ball therapy during the first stage of labour. Frequency and percentage distribution was used to analyze the demographic and obstetric data of the primi gravida mothers in experimental and control group. Mean and standard deviation was used to compute the pre and post assessment level of pain perception among primi gravida mothers in experimental and control group. Paired ‘t’ test is used to assess the effectiveness of birth ball therapy on labour.

2.1. The questionnaire for present research study comprises of two sections.

Section I: It consists of demographic variables of the primi parturient mothers such as age, religion, education status, occupational status, area of residence, type of family and gestational age, effacement.

Labour outcomes are contraction pattern, duration of labour, type of delivery, episiotomy, onset of labour, use of analgesic, and augmentation with oxytocin.

Section II: Modified combined numerical categorical pain intensity scale, which is a modified pain scale selected for the assessment of the labour pain. The scale is grouped into five categories.

0	-	No pain
1 – 3	-	Mild pain
4 – 6	-	Moderate pain
7 – 9	-	Severe pain
10	-	Excruciating pain

Section - D

Child birth experience was assessed by using the Modified Labour Agency (LAS) scale which was basically invented by Hodnett. ED, Simmons-Tropea. DA. This is the 7point rating scale which has 10 item inventory including 6 positive and 4 negative items related to perceived degree of control and this scale was modified in to 6 point rating scale with 5 positive and five negative items equally. The 5 positive descriptions are i felt confident, control, relaxed, important and secure and5 negative descriptions are I felt fearful, uncontrollable, tensed, helpless and insecure. All

these items are perceived degree of control during child birth. Women ranked the items on a 6point rating scale from (0) “almost all the time to (5) “never or almost never”. The positive items were reversed for the analysis and high score equal to high control. If the women always experienced positive experience listed during child birth and never experienced negative feeling then she would score 50 on LAS. Total items are 10 and total score is 50.

Positive experience

1. I felt confident
2. I felt in control
3. I felt relaxed
4. I felt important
5. I felt secure

Negative experience

1. I felt fear full
2. I felt uncomfortable
3. I felt tensed
4. I felt helpless
5. I felt insecure

For Positive Items Score can be given as

- Almost at the time – 5
- A lot but not always – 4
- Sometimes – 3
- A little more than half times – 2
- Never almost or never – 1

For Negative Items Score can be given as

- Almost at the time – 1
- A lot but not always – 2
- Sometimes – 3
- A little more than half times – 4
- Never almost or never – 5

3. Results

Table 1: Comparison of pretest and post test pain perception and birth experience in the experimental group

Variables	Pretest		Post Test		Paired ‘t’ Value
	Mean	S.D	Mean	S.D	
Pain Perception	8.49	1.36	3.35	0.74	t = 29.427*** p = 0.000, S
Birth Experience	23.58	4.38	38.80	5.73	t = 24.092*** p = 0.000, S

N=20; ***p<0.001, S – Significant

The table 1 shows that with regard to pain perception, the pretest mean score was 8.49 with S.D 1.36 and the post test mean score was 3.35 with S.D 0.74. The calculated ‘t’ value of t = 29.427 was found to be statistically significant at p<0.001 level. Regarding the birth experience, the pretest mean score was 23.58 with S.D 4.38 and the post test mean score was 38.80 with S.D 5.73. The calculated ‘t’ value of t = 24.092 was found to be statistically significant at p<0.001 level. These findings clearly indicates that after the birth ball therapy pain and birth experience was significantly reduced and this clearly shows that birth ball therapy was found to be

effective in reducing the pain perception and increasing the level of effectiveness and birth experience during labour in the experimental group.

Fig 1: Comparison of pre and post test pain perception birth experience in the experimental group

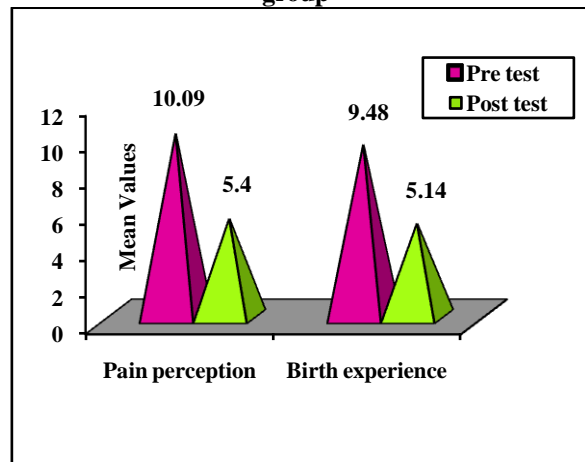


Table 2: Comparison of pretest and post test pain perception and birth experience in the control group

Variables	Pretest		Post Test		Paired ‘t’ Value
	Mean	S.D	Mean	S.D	
Pain Perception	8.39	1.13	8.62	1.14	t = 1.688 p = 0.094, N.S
Birth Experience	23.36	4.29	23.36	4.29	-

N=20; N.S – Not Significant

The table 2 shows that with regard to pain perception, the pretest mean score was 8.39 with S.D 1.13 and the post test mean score was 8.62 with S.D 1.14. The calculated ‘t’ value of t = 1.688 was not found to be statistically significant. Regarding the birth experience, the pretest mean score was 23.36 with S.D 4.29 and the post test mean score was 23.36 with S.D 4.29. The ‘t’ value cannot be calculated. These findings clearly indicate that there was no reduction in the level of pain and anxiety and increase in the level of effectiveness and positive birth experience during labour in the control group.

Fig 2: Comparison of pre and post test pain perception and birth experience in the control group

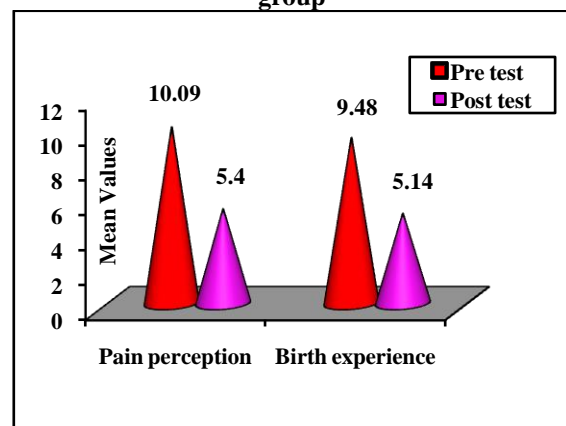


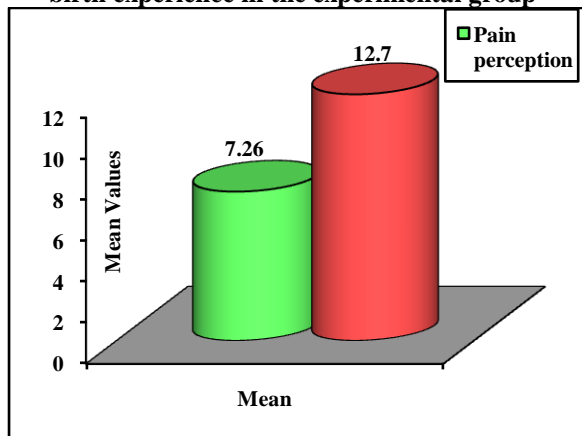
Table 3: Correlation between pain perception and birth experience in the experimental group

Variables	Mean	S.D	'r' Value
Pain perception	3.35	0.74	r = -0.474 p = 0.000, S**
Birth experience	38.80	5.73	

N=20; **p<0.01, *p<0.05, S – Significant

The table 3 shows the relationship between pain perception and birth experience in the experimental group. Karl Pearson's Correlation Coefficient was computed to find the relationship between the variables. The calculated 'r' values shows that there was a positive correlation between the pain and birth experience which was found to be statistically significant at p<0.01 level. This clearly indicates that in the post test when pain perception level also decreases. Similarly, when the effectiveness of birth ball therapy increases birth experiences also increases positively.

Fig 3: Correlation between the pain perception and birth experience in the experimental group



4. Discussion

Although the birth ball has been used in a variety of birth settings and is believed to be a simple, effective, and safe method of support and pain relief for women in labour, there have been few studies to substantiate this belief. This study has shed some lights on the effects of using the birth ball during childbirth. Its findings suggest that recourse to the birth ball could reduce pain and anxiety levels, shorten the first stage of labour, and that women were satisfied with its use.

One of the objectives of this study was to examine whether there were any adverse effects in using the birth ball during labour in terms of obstetric outcomes. In this respect, the main finding was a significant reduction in the duration of first stage of labour, and for all other outcomes, there were non-significant differences. It has therefore been suggested that one of the benefits of the birth ball was to help the baby find its best fit through the pelvis and facilitate fetal head rotation and descent, thus making labour shorter[4,7]. These findings also

demonstrated that use of the birth ball during labour was safe.[6]

Regarding the experience of using the birth ball during labour, most women reported that it could promote comfort and relaxation, reduce their anxiety, as well as labour and back pains. This was consistent with the information in the literature. The high proportion willing to use the birth ball in future pregnancies and labour suggested that women were satisfied with its use. The most common reason for ceasing birth ball use was not that they found it no longer useful, but that they wanted to have rest in bed. Not surprisingly, women might need more than one method to help them to cope with the labour pains. Many studies have also demonstrated that women should be able to ambulate and move about freely during labour, which can make them feel better in control and contribute to a positive childbirth experience. The birth ball does offer women such a choice.[7]

5. Conclusion

Labour being the end of the long expectation of pregnancy, marks the beginning of the extra uterine life of the new born. To mark a good beginning, the process and experience of labour should not be a misery for the mother. There are a variety of discomforts that a woman will experience during labour. Reducing these discomforts is an important part of good nursing care. Non-pharmacologic methods like walking and birthing ball helps to decrease these discomforts as mit reduces the duration of labour.

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