



INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Effect Of Slow Paced Breathing Technique On Pain During Active Phase Of Labour Among Antenatal Mothers In Perinthalmanna Nursing Home, Kerala

¹Ahalya.P, ²Dr.S.Usha, ³Dr.T.Priyadharshini

¹Ph.D Scholar, ²Guide, ³Co Guide

¹Rani Meyyammai College of Nursing, Annamalai University,
Chidambaram, Tamil Nadu

²Rani Meyyammai College of Nursing, Annamalai University,
Chidambaram, Tamil Nadu

³Moulana College of Nursing, Perinthalmanna, Kerala

Abstract

Pain in childbirth is a universal experience. It is a normal occurrence and Labour pain experience will vary each individual. Labour cause and characteristics of pain in the labour room will help the nurse to provide care for the women in labour process. Non-pharmacological management of labour includes mental stimulation, thermal stimulation, and cutaneous stimulation (Campman& Durham, 2010). The objectives of this study were to: (1) To assess the level of pain among antenatal mothers during the active phase of labour in the intervention group and control group, (2) To assess the effectiveness of slow paced breathing technique during the active phase of labour in terms of pain reduction in the intervention group compared to control group. Method: The study was conducted among 30 antenatal mothers in Perinthalmanna nursing home, Kerala. Antenatal mothers were assessed by using tools like Socio-demographic proforma, Obstetrical variables and labour pain was assessed by Numerical pain rating scale. The result of the present study found that there is no significant mean difference in pre-test concerning pain level of intervention and control group ($p>0.05$). whereas in post-test 1 the mean pain level in the intervention group was 5.53 which is less than the control group 6.67 (mean difference 1.13). In post-test 2 the mean pain level in the intervention group was 4.73 which is less than the control group 6.53 (mean difference 1.80). In post-test 3 the mean pain level in the intervention group was 3.93 which is less than

the control group 6.53 (mean difference 2.60). The study findings revealed that slow paced breathing was effective in the reduction of pain at $p < 0.05$. To conclude a music therapy was effective in reducing pain during the first stage of labour among antenatal mothers. Thus, it can implement as non-pharmacological therapy to reduce labour pain.

Keywords: Slow paced breathing technique, Antenatal Mothers, Obstetrical variables, Pain level

Introduction

Motherhood is a distinct bio-psychological process that transforms and broadens the role of the women into that of a mother. This period is filled with many intense and diverse feelings encompassing excitement, expectancy, anxiety and even fear. The child birth is a universally celebrated event and a happy occasion of rejoicing. It is one of the happiest moments and a challenging event in women's life.

Pain is basic productive mechanism that alerts a person something threatening is happening somewhere in the body. The sensation of pain begins in nociceptors, the end points of afferent nerves, when they are activated by mechanical, chemical or thermal stimuli. Nociceptors are located predominantly in the skin, bone periosteum, joint surfaces, and arterial walls. When these end terminals are stimulated, chemical mediators such as prostaglandins, Histamine, bradykinin, and serotonin are synthesized and help transmit the pain impulse along small, unmyelinated C fibers and large, myelinated A-delta fibers apparently carry dull, low level pain; the fewer A-delta fibers apparently carry sharp, well-localized pain such as labor contractions. In the dorsal horn of the spinal cord, somatostatin, cholecystokinin and substance P Serve as neurotransmitters or assist the pain impulse across the synapse between the peripheral nerve and spinal nerve. The pain impulse then ascends the spinal cord to the brain cortex, where it is interpreted as pain. (Pilliteri Adele-2013).

The Melzack- wall gate control theory of pain control (Melzack & Wall, 1965), the most widely accepted theory of pain response, proposes that pain hand held at three points : the peripheral end terminals, the synapse points in the dorsal horn or the point to which the impulse is interpreted as pain in the brain cortex.

Pain terminals are automatically reduced by the production of endorphins and enkephalins, naturally occurring opiates that limit transmission of pain from the end terminals. Pain can be reduced further by mechanically irritating the nerve fibers by an action use as rubbing the skin. This techniques block nerve transmission.

The brain cortex can be distracted from the sensing impulses as pain by use of such techniques as imagery, thought stopping, aromatherapy, yoga, prayer, breathing techniques, herbal preparations, heat and cold application, bathing or hydrotherapy, therapeutic touch or massage, meditation, reflexology, crystal or gemstone therapy, hypnosis, biofeedback, transcutaneous Electrical nerve stimulation, acupressure and acupuncture, Intracutaneous nerve stimulation. Many factors contribute to the client's emotional response to birth. Lack of knowledge, fear of pain, personal or family stress, lack of labour support from a significant other, degree of self-confidence, feelings of loss of control, negative attitudes about birth, cultural background, and

concerns for personal safety can all serve to block labor's progress (Goodman et al., 2004; Turley, 2004).

An individual's reaction to labour pain may be influenced by the circumstances of her labour, as well as the environment and support provided to her during this period. Psychological factors, such as stress, anxiety, fear, sense of loss of control and sense of abandonment also contribute to it. First-time mothers are more likely to give their pain a higher rating than woman who've had given birth before. The childbearing women experiences pain and discomforts during labour. Alternative and complimentary therapy like breathing exercises is proven to be effective in providing natural pain relief (Abushaikha L, Oweis A). Labour pain is a complex, personal, subjective, multi- factorial phenomenon which is influenced by psychological, biological, socio-cultural and economic factors. Although labour is often thought of as one of the most painful events in human experience, it ranges widely from woman to woman and even from pregnancy to pregnancy (Cunningham F. G. Leveno J.K, 2007).

Previous clinical trials revealed a helpful effect of performing breathing exercise during labour on reducing pain level either state or continuous. Other trials had shown advantageous effect of breathing exercises in shortening active phase and second stage of labour. To the best of our knowledge, there is lack of the national studies addressed outcome of breathing exercise on pain perception and state-anxiety in primi parturient mothers. A vital nursing role during waiting times for childbirth, is to assist parturient mothers in reducing pain perception and properly cope with uterine contractions. Thus, the present study was done to evaluate effectiveness of slow paced breathing technique on reducing labour pain among primiparturient mothers (Marzouk and Emarah, 2019).

Aim and Objectives

The present study is aimed to assess the level of labour pain during active phase of labour among antenatal mothers in Perinthalmanna, Kerala. The objectives of this study were to: (1) To assess the level of labour pain among antenatal mother during active phase of labour in the intervention group and control group, (2) To assess the effectiveness of slow paced breathing technique during the active phase of labour in terms of pain reduction in the intervention group compared to control group.

Materials and Methods

Quasi-experimental design, non-randomized control group design was applied to find the effect of slow paced breathing technique in pain reduction during the active phase of labour among antenatal mothers. The study was conducted in October 2021. The study consists of 30 antenatal mothers during active phase of labour and who are admitted to the labour room of Perinthalmanna nursing home, Kerala. The present study included antenatal mothers who have completed 37 weeks of gestation with a singleton pregnancy. Convenient sampling technique was used to select the subjects who met the inclusion criteria. Thus, the first 15 were allotted in the control group and another 15 were in the interventional group to avoid contamination.

The present study was conducted after getting approval from Institutional Ethical Committee. Antenatal mothers were enrolled after getting informed consent. The researcher explained about the intervention and data were collected by using tools like Socio-demographic proforma, Obstetrical variables, were collected through interview method. The numerical pain rating scale was used to assess pain during labour which is a subjective pain assessment tool that comprises points from 0-10. The pain score is classified into 0= no pain, 1-3= mild pain, 4-6= moderate pain, and 7-10= severe pain. The reliability in terms of internal consistency of pain scale is analyzed by Interclass correlation coefficient $r=0.84$ indicates highly reliable.

The pre-test pain level was assessed at 3 cm of cervical dilatation in the intervention group and control group. Slow paced breathing technique was taught about breathe in through the nose and out through mouth in a slow and rhythmic breath which will be half of the normal breathing count at a rate of 6 – 10 breaths per minute (approximately) during strong uterine contraction. After intervention the posttest to be done for 3 times with 45 minutes interval. Slow paced breathing technique taught to the intervention group at 4-6 cm of cervical dilatation during uterine contractions for every 10 minutes with 5 minutes of break for the first 45 minutes,, second session of slow paced breathing technique taught at 6-8 cm of cervical dilatation during uterine contractions for every 10 minutes with 5 of minutes break for the next 45 minutes and the third session of slow paced breathing technique was taught at 8-10 cm of cervical dilatation during uterine contractions for every 10 minutes with 5 of minutes break for the next 45 minutes. After each break of intervention post-test I, post-test II and post-test III pain score were assessed. The Control group received routine care and the Post-test was assessed after 45 minutes at 4-6 cm of cervical dilatation, 6-8 cm dilatation and 8-10cm cervical dilatation respectively. Data analysis in terms of descriptive and inferential statistics was performed using SPSS v.20.

Results

The demographic data shows that the age of antenatal mothers ranges between 18-20 years, were about 60.00% of mothers in the intervention group and 53.00% of mothers in the control group belonged to 18-20 years of age group. 40.00% of mothers in the intervention group have a higher secondary education, whereas mothers in the control group have 73.00% of higher secondary education. In religion, 40.00% of mothers in the intervention group were Hindus and 73.00% of mothers in the control group were Muslim. 100% of mothers in the intervention group were in housewives, 87.00% of mothers were housewives in control group groups respectively.

In the type of family, the majority 60.00% of mothers in the intervention group belong to a joint family and 53.00% of mothers in the control group belong to a nuclear family. But, in both groups had a non-consanguineous marriage 100%. Regarding residence 40.00% of mothers in the intervention group residing in urban and 53.00% of mothers residing in semi urban in the control group, In the duration of married life more than half of the mothers 54.00% in the intervention group is 1-2 years and 53.00% in the control group reported the duration of the marriage is less than one year. 53.00% of mothers in the intervention group has opinioned as

mother is the support person and 47.00% of mothers in the control group has opinioned as mother-in-law is the support person. Remarkably, in both the groups, all of them 100% were opinioned as leading satisfactory marital relationship, pregnancy is planned, attended, registered their pregnancy and not practicing complementary therapy.

Moreover, the obstetrical variable shows that 100 % of mothers in the intervention group and 93% in the control group had received regular antenatal care. Majority of mothers 93.00% were between 38-40 weeks of gestation in the intervention group and 100% of mothers were between 38-40 weeks of gestation in the control group. Augmentation of labour for 73.00% of mothers in the intervention group and 80.00% of mothers in the control group.

Table 1: Distribution of obstetrical variables of antenatal mothers in the intervention group and control group.

N=30

Variable	Intervention group (n=15)		Control group (n=15)		t-value	p-value
	Mean	SD	Mean	SD		
Height in cm	154.09	3.68	154.21	4.11	0.084	0.934
Weight in kg	9.80	0.87	9.87	1.15	0.179	0.859
Gestational age in weeks	38.93	0.80	38.87	0.64	0.252	0.803

The obstetrical variables exhibit that, the mean Height, Weight, and Gestational age in the intervention groups were 154.6, 9.80, and 38.93 respectively. Similarly, the mean Height, Weight, and Gestational age in the control group were 154.21, 9.87, and 38.87 respectively. It shows that there is no significant mean difference in pre-test concerning obstetrical variables of intervention and control group ($p > 0.05$) (table 1).

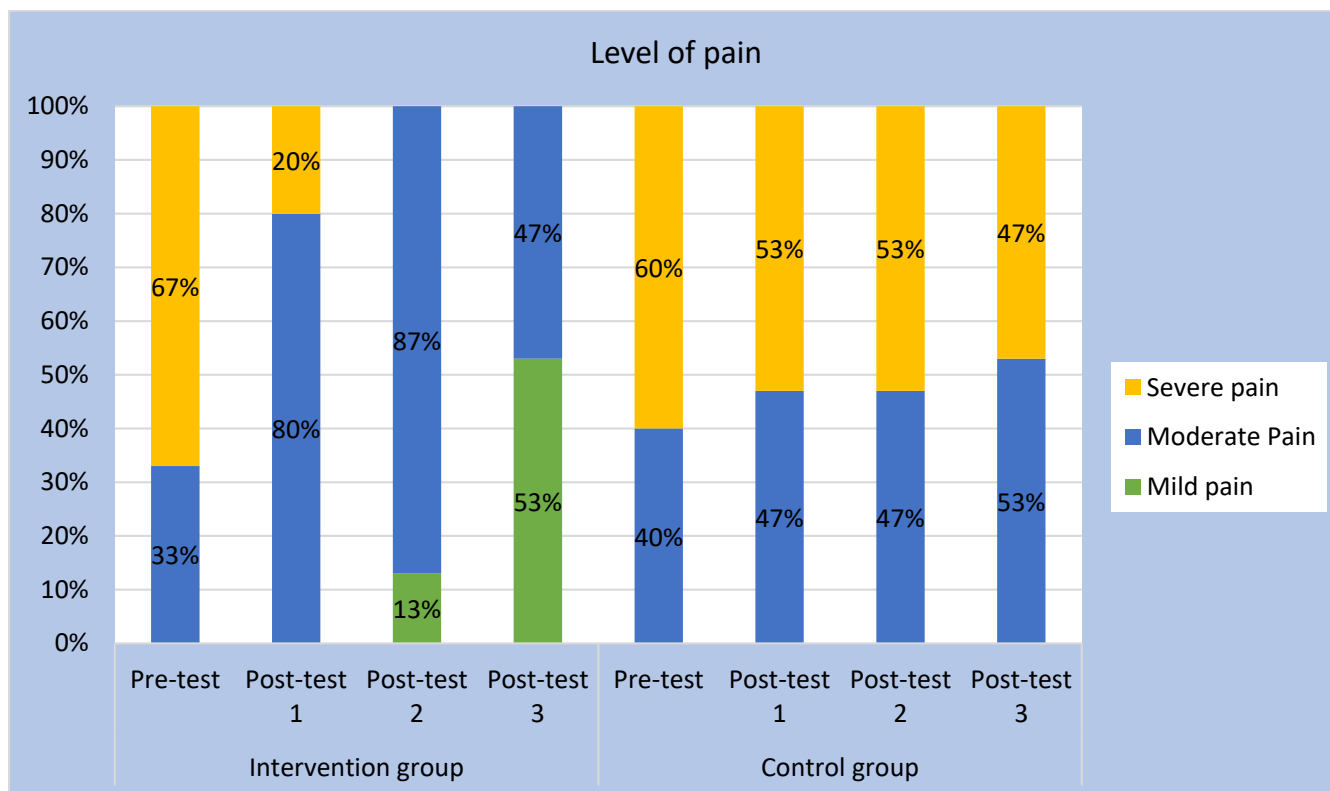


Figure 1: bar diagram shows the percentage distribution of pain of antenatal mothers in the intervention and control group during the pre-test, post-test 1, post-test 2 and post-test 3.

The level of pain during the pre-test shows that the majority 67.00% of mothers had severe pain and the remaining 33.00% of mothers had moderate pain in the intervention group and 60.00% of mothers had severe pain and the remaining 40.00% of mothers had moderate pain in the control group. Followed by in post-test 1, in the intervention group, 80% of mothers had moderate pain and 20% of mothers had severe pain. In the control group majority 53% of mothers had severe pain and at least 47% of mothers had mild pain. In post-test 2 shows that 87% of mothers in the intervention group had moderate pain and 13% of mothers had severe pain. In the control group 53% of mothers had severe pain and 47% of mothers had moderate pain. Further in post-test 3 shows that 47% of mothers in the intervention group had moderate pain and 53% of mothers had mild pain. In the control group, all of them (100%) reported severe pain. In the control group 53% of mothers had moderate pain and 47% of mothers had severe pain. (Figure 1).

Table 2: Comparison of pain scores of antenatal mothers in the intervention group and control group

N=30

Pain level at assessment	Group 1 (n=15)		Control group (n=15)		Mean difference	t-value	p-value
	Mean	SD	Mean	SD			
Pre-test	7.40	1.68	7.20	1.26	0.20	0.368	0.368 (NS)
Post-test1	5.53	0.92	6.67	1.18	1.13	2.947	0.006**
Post-test 2	4.73	1.03	6.53	1.30	1.80	4.195	<0.001***
Post-test 3	3.93	1.28	6.53	1.06	2.60	6.059	<0.001***

NS- Not Significant, **Significance at $p<0.01$, ***Significant at $p<0.001$

The effect of slow paced breathing technique during the active phase of labour among antenatal mothers in terms of pain was analyzed by an independent t-test. The mean pre-test pain score in the intervention and control group was 7.400 and 7.200 respectively. The present study reveals that there is no significant mean difference in pre-test pain level in both groups ($p>0.05$). Further in post-test 1, the mean pain score in the intervention group was 5.533 which is less than the control group 6.67(mean difference 1.13). This revealed that slow paced breathing technique is effective in pain reduction in terms of significant mean difference $t=2.947$ ($p<0.05$). In post-test 2 the mean pain score in the intervention group and control group was 4.73 and 6.53 respectively (mean difference 1.80) This revealed that slow paced breathing technique is effective in pain reduction in terms of significant mean difference $t=4.195$ ($p<0.01$). Similarly, in post-test 3 the mean pain score in the intervention group and control group was 3.93 and 6.53 respectively (mean difference 2.60) This revealed that slow paced breathing technique is effective in pain reduction in terms of significant mean difference $t=6.059$ ($p<0.01$). The present study revealed that the pain score in the intervention group was significantly lower than the control group at $p<0.01$ (table 2).

Discussion

Complementary and alternate therapies for pain relief involve non-pharmacologic measures that may be used either as a women's total pain management program or to complement pharmacologic interventions. Pharmacologic measures for pain relief during labour include analgesia and anesthesia which causes a complete loss of sensation. It includes narcotic analgesia, lumbar epidural block, pudendal block, Local infiltration of the perineum, and general intravenous anesthetics (Pillitteri and Pillitteri, 2010).

Non-pharmacologic management includes music therapy, Reflexology, meditation, Relaxation, Breathing techniques, Aromatherapy, Hot and cold therapy, Hydrotherapy, and Transcutaneous electronic nerve stimulation (Lowdermilk et al., 2006)

The present study was conducted among 30 antenatal mothers who have completed 37 weeks of gestation, with a singleton pregnancy, with vertex presentation, and who is in the active phase. A convenient sampling technique was used to select the study subjects. The first 15 were included in the control group and another 15 in the intervention group. The findings show that in post-test 1, the mean pain score in the intervention group was 5.533 which is less than the control group 6.67 (mean difference 1.13). This revealed that slow paced breathing technique is effective in pain reduction in terms of significant mean difference $t=2.947$ ($p<0.05$). In post-test 2 the mean pain score in the intervention group and control group was 4.733 and 6.533 respectively (mean difference 1.80). Similarly, in post-test 3 the mean pain score in the intervention group and control group was 3.933 and 6.533 respectively (mean difference 2.60). The present study revealed that the pain score in the intervention group was significantly lower than the control group at $p<0.01$.

The present study findings were supported by a randomized control trial study to evaluate the effectiveness of slow paced breathing on labour pain perception among primigravida mothers admitted in maternity unit of hospital at Belgaum, Karnataka in India. 60 primigravida mothers (30 mothers for experimental and 30 mothers for control group) who were admitted in maternity unit selected by using simple random sampling method (lottery method). The results showed that the majority 66.7% of primigravida mothers in the experimental group and 70% of primigravida mothers in control group showed positive response and 33.3% of primigravida mothers in the experimental group and 30% of primigravida mothers in the control group showed negative response in pretest. In the posttest after the intervention of slow paced breathing, 100% of primigravida mothers showed positive response in the experimental group and 100% of primigravida mothers showed negative response. The mean difference of behavior response score was 10.40 in experimental group and 5.37 in the control group and which was significant at $p<0.005$. Findings of the study revealed that slow paced breathing technique would be very helpful in reducing labour pain perception in primigravida mothers during active phase of labour the use of slow paced breathing was an effective method of reducing pain perception among women during labour (Gupta, Raddi and Gupta (2017)).

Conclusion

To conclude, slow paced breathing technique is effective to reduce pain during the active phase of labour among antenatal mothers. 30 antenatal mothers who underwent slow paced breathing technique are compared with a control group who received routine care. The present study findings revealed that slow paced breathing technique is effective in the reduction of pain during the active phase of labour. Since it is cost-effective, feasible intervention without any side effects, it can implement as non-pharmacological therapy to all the mothers who are admitted to the labour room.

Funding: no external funding

References

- Bhaskar, N. (2014). Midwifery and Obstetrical nursing (2nd edition). EMMESS Medical Publishers.(Bhaskar, 2014)
- Chapman, L., & Durham, R. (2010). Maternal-Newborn Nursing. Davis Company. (Chapman & Durham, 2010) <https://doi.org/10.9790/1959-0704052832>
- Tyseer Marzouk,Hanan Abd-Elmohdy Emarah. (2019). An Quasi Experimental Study to Assess Effectiveness of breathing exercise on Reducing labour pain perception and state anxiety among Primiparturientsin First Stage of Labor inZagazig University hospitals,Egypt, Rajasthan. IOSR Journal of Nursing and Health Science (IOSR-JNHS), Vlo 8 (e- ISSN: 2320–1959.p- ISSN: 2320–1940).
- Gupta B.R (2017). A randomized control trial study to evaluate the effectiveness of Slow PacedBreathingonLabourPainPerceptionamongPrimigravida Mothers Admitted in Maternity Unit of Selected Hospital ofBelgaum, Karnataka. Imperial Journal of Interdisciplinary Research (IJIR): (3):1621–1625.
- Lowdermilk A, Perry. (2006). Maternity Nursing. (6th edition). Elsevier Publications
- Pillitteri, A., & Pillitteri, A. (2010). Maternal & child health nursing: care of the childbearing & childrearing family (6th edition). Wolters Kluwer. (Pillitteri& Pillitteri, 2010) 396 -398

