Research Article

EFFECTIVENESS OF FOOT REFLEXOLOGY ON LABOUR PAIN DURING FIRST STAGE OF LABOUR AMONG PRIMIGRAVIDA MOTHERS

Susan Thomas and Reshmi Siby

Obstetrics and Gynaecological Nursing, TMM College of Nursing, Kaviyoor, Kerala, India

ARTICLE INFO	ABSTRACT
	The present study titled the "effectiveness of foot reflexology on labour pain during first stage of labour among primi gravida mothers" was done in labour room of Tiruvalla Medical Mission Hospital, (TMMH) Tiruvalla, Kerala, India. The study was aimed to assess the effectiveness of foot reflexology on labour pain in primigravida mothers. Quantitative approach with pre test post test only design was used. Data collection period was for a period of 6 weeks. After taking the informed consent, using purposive sampling technique, mothers were allotted in to control and experimental group alternatively. Demographic data was collected using structured questionnaire and pretest pain at 3cm cervical dilatation using the Numerical pain rating scale. Experimental group received foot reflexology for duration of 15 minutes with an interval of 30 minutes for 3 sessions during the active phase of labour. Post test was conducted after each session. Control group received routine care. Post test was conducted for three times without intervention. Data obtained were analyzed using chi –square and independent sample 't' test. The mean pre and post test pain level in control group was 3.96, 5.03, 6.90, and 8.50 respectively. The mean pre and post test pain level in experimental group was 3.90, 2.93, 4.36 and 6.33 respectively. There was significant reduction in labour pain which proved foot reflexology was effective.

INTRODUCTION

Childbirth is a natural biological process and therefore pain associated with it is perceived as normal. The pain threshold increases as the mother progresses in her labour. So, management of pain and making her birth a positive experience is very much important. [14] To make the childbirth a positive experience for women, there is an increasing emphasis on intrapartum pain management. However because of potential side effects for the mother and foetus, the use of analgesia and anaesthetic agents may not be the first choice for pain management for women in labour. Then it becomes important for the nurses to choose non- pharmacological methods. [10]

Reflexology is the natural art based on the principle that there are reflexes in the feet, hands and ears, which correspond to every part, glands and organ of the body. Through the application of pressure on these reflexes without the use of lotions or tools, can relieve tension, improve circulation and promote the natural function of related area of the body. Reflexologist posits that the blockage of an energy field can prevent healing. Explanation is that the pressure received in the feet may send signals that balance the nervous system or release chemicals such as endorphins that relieve stress and pain. It is mostly in reducing pain during 1st stage labour. [11] A quasi-experimental study was done in 2009 to review the effect of reflexology on labour pain among 88 primiparous mothers at Isfahan. The study concluded that there was no significant difference between control and experimental group before intervention. In the reflexology group, there was a significant difference between the pain rating index before and after the 4 stages of intervention (p< 0.001). Pain rating index was different significantly between two groups after intervention (p<0.001).

The investigator found that women were struggling to cope up with pain and stress during labour. It has been found that the women who received pharmacological management have less bearing down effort which in turn leads to caput formation and increased rates of vacuum assisted and forceps delivery. It also effects in causing respiratory distress in neonates. Above all, mothers are not able to experience the thrill of giving birth to the baby. This motivated the investigator to find out the effect of reflexology on labour pain. Moreover there are fewer studies done in India to find out the effectiveness of Reflexology whereas such therapies are widely accepted in foreign

---

Corresponding author: **Susan Thomas**
TMM College of Nursing, Kaviyoor, Kerala, India

countries. This has motivated the investigator to do a study to assess the effect of reflexology on labour pain.

Objectives

- To assess the intensity of labour pain in primigravida mothers.
- To assess the effect of foot reflexology on intensity of labour pain.
- To find out the association between intensity of labour pain with selected demographic variables.

Hypothesis

- **H1**: There will be significant relationship between foot reflexology and intensity of labour pain.
- **H2:** There will be significant association between intensity of labour pain with selected demographic variables.

MATERIALS AND METHODS

Quantitative approach with pre test post test only design was adopted for this study. The study was conducted in labour room of TMM hospital, Tiruvalla and the population consisted of all primigravida mothers in first stage of labour. The study sample size was 60. 30 samples were alloted in experimental and 30 in control group alternatively using Purposive sampling technique. Pilot study was conducted among 12 primigravida mothers during the first stage of labour who fulfilled the inclusion criteria. Privacy was maintained throughout the data collection procedure. Demographic data was collected using structured questionnaire and pretest pain by Numeric pain rating scale. Pretest was conducted at 3 cm of cervical dilatation using the Numerical pain rating scale in both groups. Experimental group received foot reflexology for duration of 15 minutes with an interval of 30 minutes for 3 sessions during the active phase of labour and post test was conducted after each intervention. Control group received routine care. Post test was conducted for three times without intervention. The collected data were analyzed using descriptive and inferential statistics. The experimental group who received the foot reflexology had a significant reduction in labour pain than the control group.

RESULTS AND DISCUSSION

*Frequency and percentage distribution of samples based on demographic variables*

| Sl. No	Demographic variables	Control group(n₁=30)		Experimental group(n₂=30)	
		f	%	f	%
1	**Age in years**				
	18 – 21	2	6.66	0	0.0
	22 – 25	12	40.00	15	50.00
	26 – 29	14	46.67	13	43.33
	30 & above	2	6.67	2	6.67
2	**Education**				
	Primary	0	0.0	0	0.0
	Higher secondary	12	40.0	12	40.0
	Graduate	17	56.67	17	56.67
	Post graduate	1	3.33	1	3.33
3	**Occupation**				
	Unemployed	11	36.67	15	50.0
	Self employee	4	13.33	1	3.33
	Private Employee	15	50.00	13	43.34
	Government Employee	0	0.0	1	3.33
4	**Type of family**				
	Nuclear	16	53.33	22	73.33
	Joint	14	46.67	8	26.67
5	**Social Support**				
	Partner Support	0	0.0	2	6.67
	Both	30	100	28	93.33
6	**Famliy Income**				
	5000 – 10000	2	6.67	2	6.67
	10001-15000	25	83.33	26	86.66
	>15000	3	10	2	6.67
7	**Religion**				
	Hindu	9	30.00	14	46.67
	Muslim	1	3.33	0	0
	Christain	20	66.67	16	53.33
8	**Area of residence**				
	Urban	14	46.66	16	53.33
	Rural	16	53.34	14	46.67

Frequency and percentage distribution of primigravida mothers based on Clinical Data

Characteristics	Control group n₁=30		Experimental group n₂=30	
	f	%	f	%
Induction of labour				
Yes	19	63.3	13	43.3
No	11	36.7	17	56.7
Augmentation of labour				
Yes	25	83.3	25	83.3
No	5	16.7	5	16.7
Pain during menstruation				
Mild	10	33.33	9	30.0
Moderate	15	50.0	17	56.67
Severe	5	16.67	4	13.33

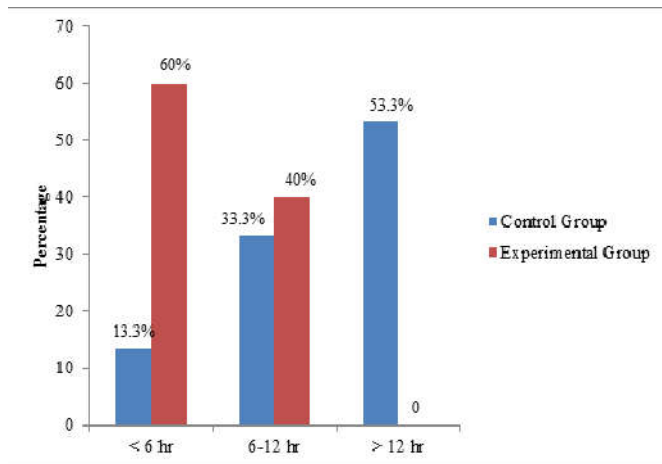*Distribution of subjects according to the method induction of labour*
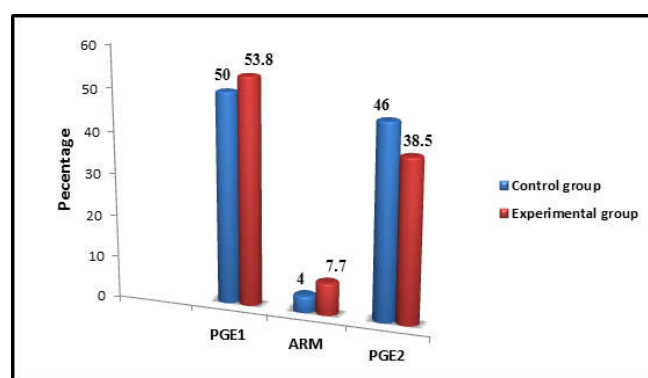
Distribution of subjects according to the method of augmentation of labour
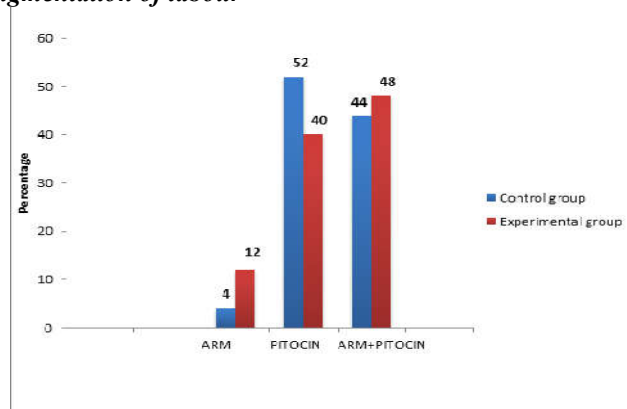
Findings related to duration of labour

Distribution of subjects according to the duration of labour

Findings related to level of pain of primigravida mothers before and after foot reflexology (Numerical Pain Scale)

In control group during pre test 83.33% of subjects had moderate pain whereas in experimental group 76.67% of subjects had moderate pain. During I^{st} post test, in control group 100% of subjects had moderate pain whereas in experimental group 90% of the subjects had mild pain after intervention. During IInd post test, in control group 76.67% of subjects had severe pain and in experimental group 100% of the subjects had moderate pain after intervention. During IIIrd post test, in control group 100% of the subjects had severe pain where as in experimental group more than half of the subjects (63.33%) had moderate pain due to intervention.

Findings related to effectiveness of foot reflexology on labour pain

	Group	Mean	SD	Mean difference	't' value	Table value
Pretest	Control	3.96	0.55	0.06	0.42	1.67
	Experimental	3.90	0.66			
Posttest 1	Control	5.03	0.55	2.1	15.09*	1.67
	Experimental	2.93	0.52			
Posttest 2	Control	6.90	0.60	2.54	16.84**	1.67
	Experimental	4.36	0.55			
Posttest 3	Control	8.50	0.50	2.17	15.89*	1.67
	Experimental	6.33	0.54			

During the pre test the mean pain score of control group was 3.96 (SD = 0.55) and experimental group was 3.90 (SD = 0.66), using independent t test it was found that there is no significant (t = 0.422, p<0.05) difference in the mean Pain score. So it can be concluded that both group had similar pain perception at pre test level. During the 1st post test the mean pain score of control group was 5.03 (SD = 0.55) and experimental group was 2.1 (SD = 0.52), using independent t test it was found that there was significant (t = 15.09, p< 0.05) difference in the pain mean score. Hence it concludes that the mean pain score of experimental group was significantly less than that of control group.

During IInd post test the mean pain score of control group was 6.9 (SD = 0.60) and experimental group was 4.36 (SD = 0.55), using independent sample t test it was found that there is significant (t = 16.84, p<0.05) difference in the mean pain score. The results reveals that the mean pain score of the experimental group was significantly less than that of control group. During IIIrd post test the mean pain score of control and experimental group was 8.5 (SD = 0.50) and 6.33 (SD= 0.54) using independent sample t test it was found that there is significant (t=15.89, p<0.05) difference in the mean pain score. It is proved that the mean pain score of experimental group was significantly less than that of control group. Hence the research hypothesis H_1 is accepted.

Association between intensity of labour pain with selected demographic variables

There was no statistically significant association between pain score and demographic variables such as age, education, social support. Hence the research hypothesis H_2 is rejected.

DISCUSSION OF THE STUDY FINDINGS

The present study aimed at evaluating the effectiveness of foot reflexology on labour pain among primigravida mothers in active phase of labour. The findings of the study has been discussed in terms of objectives and hypothesis. In the present study, Demographic data was collected from 60 samples using structured questionnaire and pre test pain by Numeric pain rating scale. A pre test was conducted at 3 cm of cervical dilatation using the Numerical pain rating scale in both groups. Experimental group received foot reflexology for duration of 15 minutes with an interval of 30 minutes for 3 sessions during the active phase of labour and post test was conducted after each intervention. Control group received routine care. Post test was conducted for three times without intervention. The collected data were analyzed using descriptive and inferential statistics. The experimental group who received the foot reflexology had a significant reduction in labour pain than the control group. In the present study, more than half of the subjects (53.3%) in the control group had > 12 hrs duration whereas 60% of subjects in the experimental group had < 6 hrs duration of labour. The findings revealed that, the experimental group had a less duration of labour when compared to control group.

Recommendations

- Similar study can be replicated on a large sample for better generalisation.
- A study can be conducted by increasing frequency and duration of foot reflexology.
- A study can be conducted to assess the comparative labour pain perception between primi and multigravida mothers.
- A study can be conducted to assess the effectiveness of complementary and alternative therapies for labour pain management.

Reference

Rudyard Kipling, Mother's quotes [Internet]. 1999 [updated 2012 Feb 10, cited 2012 Dec 9].

V.C.Andrews. London: Pocket star Books; 1996.

Hubpages [Internet]. 2012 [cited 2012 Aug 8]. Available from: hubpages.com/topic/health/women.health/pregnancy-and-childbirth

The Human Body Handles 45 Dels (units) of Pain?[Internet]. 2012[cited 2012 Oct 2].

Myles. Textbook for Midwives. 15th edition. London: Elsevier publication; 2008.

The Truth about Pain [Internet]. 2011 July 2[updated 2012 Jan 4; cited Oct 6].

Lowdermilk A, Perry. Maternity Nursing. 6th ed. Canada: Elsevier Publications ; 2006

http://www.mayoclinic.com/health/labor-and-delivery/PR00105

Chez RA, Jonas WB, The challenge of alternative and complementary medicine. American journal of Obstetrics and Gynaecology 1997; 4(6): 156-61

How to prepare for a positive natural birth. 2011 June 14 [cited 2011 July 16]. Available from: maternitymatters.net/how-to-prepare-for-a-positive-natural-birth-experience/

Reflexology.2012 [cited 2012 Nov 29]. Available from: en.wikipedia.org/wiki/Reflexology

Tournaire M, Theau-yonneau A. Alternative Approaches to pain Relief during Labour: Nature of pain During Labour and Delivery. [Homepage on the internet]. No date [cited 2012 Jun 10]. Available from: University of Paris, Obstetrics and Gynaecology Department Web site: http://www.medscape.com/viewarticle/570648-7

Simkin PP, O'hara M. Nonpharmacologic relief of pain during labour: systematic reviews of five methods. American journal of obstetrics and gynaecology [database on the internet]. 2002 May [cited 2012 Feb 5]; 186 (5 suppl Nature) Available from: http://www.uptodate.com/contents/nonpharmacological-approaches-to-management-of-labour-pain/abstract/22

Labour Pain-Myths and Truth [Internet]. 2000[updated 2011 Aug 13; cited 2012 Dec 28] Available from: www.birthingnaturally.net/pain/myth.html

WHO Definition of pain [Internet]. 2000 [updated 2010 Aug 17; cited 2012 Dec 21]. Availablefrom:www.health24.com/medical/condition_ce ntre/777-792-820-1822,18377.asp

---

How to cite this article:

****