

# Effect of Infrared Therapy on Episiotomy Pain and Wound Healing in Postnatal Mothers

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Pregnancy and child birth are special events in women's lives. The mothers suffer much distress after child birth due to painful perineum. Perineal pain is most commonly associated with child birth by vaginal delivery. Pain following episiotomy appears to be universal. The mother undergoing episiotomy is characterised by greater blood loss in conjunction with delivery, and there is a risk of improper wound healing and increased pain during early puerperium. Various interventions are found to aid the healing process, which include cleanliness, applying ice pack, topical application by dry heat (infrared therapy), sitz bath, performance of Kegels' exercise and perineal care. Infrared radiation is generally an effective means of relieving pain. When the heating is mild, the relief of pain is probably due to the sedative effect on the superficial sensory nerve endings. Stronger heat stimulates the superficial sensory nerve endings.

## Objectives

We undertook an experimental study to assess (a) the levels of episiotomy pain and wound healing in the control and the experimental group of postnatal mothers before and after the infrared therapy, (b) assess the level of knowledge regarding episiotomy care and infrared therapy in the control and the experimental groups of postnatal mothers, (c) compare the levels of episiotomy pain and wound healing between the control and the experimental groups of postnatal mothers after infrared therapy, (d) find out the associations between the selected demographic variables and the level of episiotomy pain and episiotomy wound healing in the control and the experimental groups of postnatal mothers, (e) find out the association between the knowledge regarding episiotomy care and infrared therapy and the levels of episiotomy pain in the control and the experimental groups of postnatal mothers, and (f) find out the association between the selected demographic variables and knowledge regarding episiotomy care and infrared therapy in the control and the experimental groups of postnatal mothers.

## Methodology

An experimental research, pretest post-test design was adopted for conducting this study at selected hospitals located at Kovilpatti Town, viz. Srinivasa Hospital, Kamala Hospital, KG Hospital and Selvan Hospital. A sample of 60 postnatal mothers with episiotomy were selected for the study; 30 postnatal mothers were randomly assigned to control group and experimental group each. Systematic random sampling technique was used in which every postnatal mother with odd numbers were assigned to the experimental group and every postnatal mother with even numbers were assigned to the control group. The postnatal mothers who satisfied the inclusion criteria were selected for this study.

*Selection and Development of Study Instrument* : The instruments used in the study were demographic variable proforma, '0-10' point pain intensity scale, REEDA scale, structured interview schedule on knowledge of episiotomy care and infrared therapy, self instructional module on episiotomy care and infrared therapy.

Demographic variables proforma consisted of age, educational status, occupation, family income and clinical variables such as parity, mode of delivery, type of episiotomy, indications for episiotomy, medications.

The numerical rating scale (NRS) ('0-10' point pain intensity scale) developed by Me Caffery & Pasero (1999), was used to measure the intensity of pain of postnatal mothers with episiotomy before and after infrared therapy. The intensity of pain was scored and colour differentiation given for an easy understanding of mothers. Intensity of pain scored as follows:

0 - No Pain (Green)

1-3 - Mild Pain (Yellow)

4-6 - Moderate Pain (Orange)

7-10 - Severe Pain (Red) The standardised REEDA (Redness, Edema, Echymosis, Discharge, Approximation) scale to assess postpartum healing of the perineum following an episiotomy wound was used to evaluate the effectiveness of infrared therapy every morning for three consecutive days both in control and experimental group. The total score was 15. The resulting scores were ranged as follows:

0 - No infection,

1-5 - Mild infection,

6-10 - Moderate infection,

11-15 - Infection.

A structured interview schedule was framed considering the language, clarity, organisation and sequence of items. The questions with four options were used for both the control and the experimental groups.

**Data Collection :** The researcher collected data from four selected Hospitals in Kovilpatti. The participants were selected by a systematic random sampling technique i.e, every odd number was assigned to control group and every even number was assigned to experimental group.

The list of postnatal mothers with episiotomy 6 hours after delivery was obtained. A good rapport was established with the postnatal mothers. Written consent was received from the postnatal mothers to ensure their co-operation.

The knowledge of the postnatal mothers regarding episiotomy care and infrared therapy was assessed with the help of a structured interview schedule and the self instructional module containing episiotomy care and infrared therapy was given to both the control and experimental groups. The level of pain was assessed prior to infrared therapy with '0 - 10' point pain intensity scale. Then postnatal mothers with episiotomy were placed on dorsal recumbent position after the perineal area was cleaned and dried. The episiotomy wound was assessed with REEDA scale every day morning for 3 consecutive days in both the groups. The infrared lamp was placed 45 cm from the perineum and the heat produced with 230 volts for 10 minutes was given for the experimental group and then level of pain was assessed immediately and third hour after the application of infrared therapy with '0-10' point pain intensity scale in both the groups. These procedures were carried out in the morning and the evening with 6 hours interval for 3 consecutive days.

The data were analysed, tabulated, and interpreted using descriptive and inferential statistics.

### **Results and Discussion**

Majority of the participants in both the control group (96.6%) and the experimental group (90%) had moderate pain during observation I, whereas few of them (20%) in control group and majority of them (83.3%) in experimental group expressed mild pain in observation III on the first day. On the third day only 10 percent of participants in the control group and all of the participants in the experimental group expressed no pain in observation III.

It was found that 10 percent of the participants in the control group developed mild infection whereas none of them had any infection in the experimental group on the third day after administration of infrared therapy.

Equal percentage of participants (60%, 60%) had inadequate knowledge regarding episiotomy care and infrared therapy in the control and in the experimental group.

The mean and standard deviation of episiotomy pain score of control group participants were high in both observation II and III on all three days (M=4.9, SD=0.8 and M=4.4, SD=0.8, M=3.6, SD=0.8 and

M=3.2,SD=0.8, M=2.4, SD=0.9 and M=2.1,SD=0.9), respectively, in comparison with the experimental group (M=2.9, SD=0.9 and M= 1.8, SD=0.9, M=1.3, SD=1.0 and M=0.4, SD=0.6, M=0.2, SD=0.4 and M=0.02, SD=0.09). The difference was statistically significant at  $p<0.001$  level (Table 1).

As none of them developed episiotomy wound infection in the experimental group, the statistics could not be calculated to identify the difference in episiotomy wound healing between the control group and the experimental group of postnatal mothers.

There was no significant association existed between any of the demographic variables and episiotomy pain in control and experimental group.

No participant developed any episiotomy wound infection in the experimental group, so no statistical computation could be done for association between wound healing and demographic variables after infrared therapy. In the control group there was no association existed between the demographic variables and episiotomy wound healing after the infrared therapy.

There was no association between level of knowledge regarding episiotomy care and infrared therapy and level of episiotomy pain in the control group as well as experimental group of postnatal mothers. This shows that knowledge does not have any influence over episiotomy pain.

There is no association between level of knowledge regarding episiotomy care and infrared therapy and episiotomy wound healing in the control group of postnatal mothers. The association could not be calculated in the experimental group of postnatal mothers because none of the participants developed episiotomy wound infection.

There was no significant association existed between the demographic variables and knowledge regarding episiotomy care and infrared therapy in the control group and the experimental group.

### **Implications**

**Nursing practice :** It was identified from the study that the infrared therapy is effective in reducing episiotomy pain and enhances wound healing of the postnatal mothers. Therefore the infrared therapy can be introduced to the women antenatally and then it can be used postnatally. Most human beings accustomed to the existing methods will take some time to adopt to the new methods. The nurses should also be introduced to the awareness programmes, to make them understand the benefits of the new methods.

**Nursing Education :** With the emerging health care trends nursing education must focus on innovations to enhance the nursing care. The nursing students should be taught the importance of relieving episiotomy pain and enhancing wound healing in postnatal mothers. Therefore the nursing students should be introduced with the alternative methods of pain relief to reduce pain in postnatal mothers to deliver the nursing care effectively. Nurse educators should orient the students towards various forms of interventions for episiotomy pain and wound healing.

**Nursing Administration :** With technological advances and ever growing challenges of health care means, the administrators have a responsibility to provide nurses with substantive continuing education opportunities. This will enable the nurses to update their knowledge in the latest innovations. The nurse administrator should take initiative to implement the infrared therapy in postnatal mothers to reduce episiotomy pain and enhance wound healing.

**Nursing Research :** There is a need for extensive and intensive research in this area.

## Conclusion

The study indicates that the infrared therapy reduces episiotomy pain and enhances wound healing in postnatal mothers. It is a suitable alternative of intervention for those with episiotomy wound.

## Recommendations

(1) The study can be conducted in different settings with similar facilities or with a larger sample, (2) A comparative study can be conducted with hot and cold therapy, (3) A study can be conducted to evaluate the cost effectiveness of the infrared therapy in terms of days of hospitalisation, (4) A long term study can be done to identify the impact of infrared therapy in reducing later complications

## References

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Table 1: Comparison of Mean and Standard Deviation of Episiotomy Pain after Infrared Therapy in Control and Experimental Groups

Episiotomy Pain	Control Group		Experimental Group		t' value
	M	SD	M	SD	
Day 1					
Observation II	4.9	0.8	2.9	0.9	8.1***
Observation III	4.4	0.8	1.8	0.9	11.1***
Day 2					
Observation II	3.6	0.8	1.3	1.0	9.1***
Observation III	3.2	0.8	0.4	0.6	14.8***
Day 3					
Observation II	2.4	0.9	0.2	0.4	11.5***
Observation III	2.1	0.9	0.02	0.09	12.4***

\*\*\* p<0.001