

## Effectiveness of Jacobson's progressive muscle relaxation technique for pain management in post-cesarean women

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### Abstract

**Introduction:** Pain is the most distressing response in early post operative period. Patients with post operative pain has a different response according to pain and opioids. Pain sensitivity is more in females than males. Cesarean section is one of the major surgery that causes pain. Post operative pain can be managed by pharmacological and non- pharmacological. One non-pharmacological approach is relaxation therapy. So it's important to have adjunct therapy like relaxation to reduce pain in C-section women.

**Purpose of the Study:** Cesarean section women experiences pain due to operative trauma. One of the relaxation technique is Jacobson's. Skills in releasing pain of local parts of body can have direct effect on entire body. Jacobson's technique has a hypothalamic response which decrease sympathetic arousal and muscle tone. This mechanism helps to relieve pain and distress.

**Objectives:** 1) To find out post operative relief of pain between experimental and controlled groups on VAS score. 2) To find out mean difference between pain scores of controlled and experimental groups

**Methodology:** This study was conducted on 34 subjects. It was randomised controlled study. Intervention was for 5 days. Dose of analgesics were collected from medical records. Controlled group was given pre operative instructions. Experimental group performed Jacobson's technique. Before and after intervention, pain was assessed with VAS score.

**Conclusion:** Pain is more reduced in experimental than controlled group.

There is significant difference in mean values between pain scores of controlled and experimental group on VAS score.

**Keywords:** Jacobson's relaxation, Cesarean section, Pain management.

### Introduction

Pain is the most distressing response in the early post operative period.<sup>1</sup> Patients with post operative pain has different response according to pain and opioids. Experiencing pain is a combination of physiological and psychological features and is a non-persistent tissue damage. Pain sensitivity is more in females than males. Cesarean section is one of the major surgery that causes pain. Surgery threatens the integrity of body by biologically, psychologically, socially and spiritually which causes discomfort as pain.<sup>2</sup> Post operative pain is due to the increased neural input from incised nerves, muscles and tissues. Reflex muscle contraction may be a secondary source of pain.<sup>3</sup> Pain in post-cesarean section can be managed by pharmacological and non-pharmacological approaches.<sup>1</sup>

One non-pharmacological approach to decrease pain is relaxation therapy. So it is important to have adjunct therapy like relaxation to reduce pain by interrupting the post operative cycle of pain, muscle tension and sympathetic activity.

Relaxation therapy can be considered as a method of post operative pain management. Relaxation provides or aims to decrease anxiety, muscle tension and to relieve pain.<sup>1</sup> Relaxation technique which increases patient's control over some aspect of pain can be method for pain management. Relaxation technique applied to post operative pain may decrease physiological input due to secondary reflex muscle contraction as well as alter the psychological variables

of focus of attention, anxiety and perceived control.<sup>6</sup> Physical pain is an unpleasant experience associated with tissue damage which occurs due to surgical intervention. Patients who experience greater pain are at higher risk of delirium, are slower to mobilise, have longer hospital stays and poorer health quality of life. When patient taught any relaxation technique, there is less muscular pressure at the arteriole level.<sup>3</sup> With less tension, less energy is diverted into hypothalamus.<sup>3</sup> Post operative pain management has centered upon the use of potent analgesics. This approach is effective but there is adverse effect of depressed respiration and pulmonary functions.<sup>6</sup> Relaxation techniques can be used to manage pain in abdominal surgeries.<sup>3</sup>

**Need of Study:** Relaxation therapy is intervention which can be used to cope up with painful activities and post operative discomfort. One of the indications for use of relaxation technique is to relieve pain. One of those who develop post operative pain is post delivery women (cesarean section). Post-cesarean section women experience pain due to operative trauma. Post operative pain management has centered upon the use of potent analgesics. This approach is effective but there is adverse effect of depressed respiratory and pulmonary functions. Relaxation techniques can be used to manage pain in abdominal surgeries.

One of the relaxation techniques can be learnt in short time is Jacobson's. Skills in releasing tension or pain of local parts of body can have direct effect on entire body. Jacobson's technique has a hypothalamic

response which decrease sympathetic arousal and decrease muscle tone. This mechanism helps to relieve pain and distress. The use of relaxation techniques may provide distraction of attention from a painful body site, decrease in anxiety and development of sense of control over pain.

### Aims and Objectives

**Aim:** To see the effectiveness of Jacobson's progressive muscle relaxation technique in reducing pain in post-cesarean section women.

### Objective

1. To find out post operative relief of pain between experimental and control groups on visual analogue scale.
2. To find out mean difference between pain scores of controlled and experimental groups.

### Review of Literature:

1. Tetti Solehati; Yeni Rustina; benson relaxation technique in reducing pain intensity in women after cesarean section; *Anesthesiology and pain medicine*; 2015 June; 5(3). This was a quasi-experiment study with pre and posttest design. It had 2 groups-Cibabat Hospital as interventional group and Sartika Asih Hospital as controlled group. This study was conducted on 60 subjects. Thus this study concluded that there is a significant difference comparing pain intensity before and after intervention in controlled and experimental group but pain is more reduced in experimental than controlled group. Thus the Benson relaxation could reduce pain intensity in women after c-section.
2. Amin Ebnesahidi, M.D., and Masood Mohseni, M.D; The effect of patient-selected music on early postoperative pain, anxiety, and hemodynamic profile in cesarean section surgery; *Volume 14, Number 7, 2008, pp. 827-831*. This study was Randomised controlled study. It was conducted on 80 subjects. It had 2 groups as controlled and interventional group. In this, interventional group wore soft open hair headphones and a tape player and controlled group wore headphones with no music. This study concluded that the pain score was significantly reduced among cesarean section in music group. Thus post operative use of patient selected music in cesarean section surgery would alleviate pain and decreased need of analgesics so there is improvement in recovery of patients.
3. Geraldine G. Flaherty; Joyce J. Fitzpatrick; relaxation technique to increase comfort level of postoperative patients: A Preliminary Study; *Nursing Research*; November-December; Vol.27; No.6. This study was conducted on 42 subjects. It had 2 groups- interventional and controlled group. This study found that mean differences of incisional pain and body distress, analgesic

consumption and respiratory changes were statistically significant. It supports the hypothesis that the use of a relaxation technique can reduce muscular tension which will lead to an increased comfort level of post operative patients.

4. Adriana Aparecida Deloiagono de Paula; Emilia Campos de Carvalh; Claudia Benedita dos Santos; The use of the "Progressive Muscle Relaxation" technique for pain relief in gynecology and obstetrics; *Sept./Oct. 2002; vol.10 no.5* ; This study found that the progressive muscle relaxation causes the perception of pain relief as manifested by the patients. The progressive Muscle Relaxation technique in case of post-surgery pain complaints, which will certainly bring positive results to patients. It also suggested that patients be taught the self-application of such technique for pain relief.
5. Cathy M. Ceccio, R.N., C., M.S.N; Postoperative Pain Relief through Relaxation in Elderly Patients with Fractured Hips; *Orthopaedic Nursing*; May/June 1984;Vol 3; No 3; This study was experimental design. It was conducted on 20 subjects and had 2 groups as controlled and interventional. This study found that there was a statistically significant variance in mean levels of post operative sensation of pain and distress between experimental and controlled group subjects. Experimental group subjects expressed a lower level of pain and distress immediately after turning to unaffected side during first 24 hours following surgery. There is statistically significant lower differences in levels of sensation of pain and distress indicated that subjects had a greater level of comfort after being used. Thus, implication of Jacobson is probably effective in increasing post operative comfort in elderly patients who undergo surgery for repair of fractured Hips.
6. Nancy wells; the effect of relaxation on postoperative muscle tension and pain. *Nursing research* 1982 July-Aug;31(4):236-8.; this study was pre and post test design. It had conducted on 12 subjects and had 2 groups as controlled and interventional. This study concluded that the distress caused by painful sensations was lower for experimental group who learned the Jacobson's relaxation technique

### Methodology

**Inclusion Criteria:** Primigravida women

- a. Women with lochia
- b. Women with age group of 18 to 30

**Exclusion Criteria:** Multigravida women

- a. Respiratory complications
- b. Dyspnoeic women

**Duration of Study:** 5 days

**Sample Size:** 34 (n=17 in each group)

**Study Design:** Randomised controlled trial

**Study Place:** Tertiary care centre

**Procedure:** Approval taken from Ethical Committee of Institute to perform research project. Subjects were informed about need of study, its benefits and written consent taken from subjects. Then before intervention, subjects were assessed with the help of visual analogue scale. Subjects were randomised with the help of software random analyser and then been divided into controlled and experimental groups.

Dose of analgesics taken from medical records and intake of analgesics were kept same in both groups in order to maintain equality of both groups. Subjects had taken analgesics for first 2 days after operation. On day 1 they had taken 3000mg and on day 2 they had taken 30 mg. From next day they were only on Jacobson's relaxation technique without analgesics.

In experimental group one session for each day of Jacobson's progressive muscle relaxation technique was demonstrated to subjects under therapist supervision. Subjects performed this technique for 5 days. So 5 sessions of Jacobson's progressive muscle relaxation technique had been done in a week under therapist supervision. Subjects had performed this technique 10 times in one session. The Jacobson's relaxation technique includes relaxation for upper

limbs, lower limbs, head and trunk. Controlled group had been given instructions like practice of deep breathing exercises, description of sensation of pain which they are going to experience, coughing maneuvers in form of splinting where they need to place hand over the abdominal region diagonally supporting suture area and side turning taught whereas experimental group performed Jacobson's progressive muscle relaxation technique under supervision.

Steps for performing Jacobson's technique are-

**Lower Limbs:** Dorsiflexion of ankle, isometric contraction of knee and isometric contraction of hip.

**Upper Limbs:** Making a fist, isometric contraction of wrist, elbow flexion, and shoulder adduction.

**Trunk:** Shoulders is pressed against bed.

**Head:** Head is pressed against bed.

The sequence is from distal to proximal (lower limbs to head). So there would contraction of muscles from ankle to head and relaxation would takes place from head to ankle.

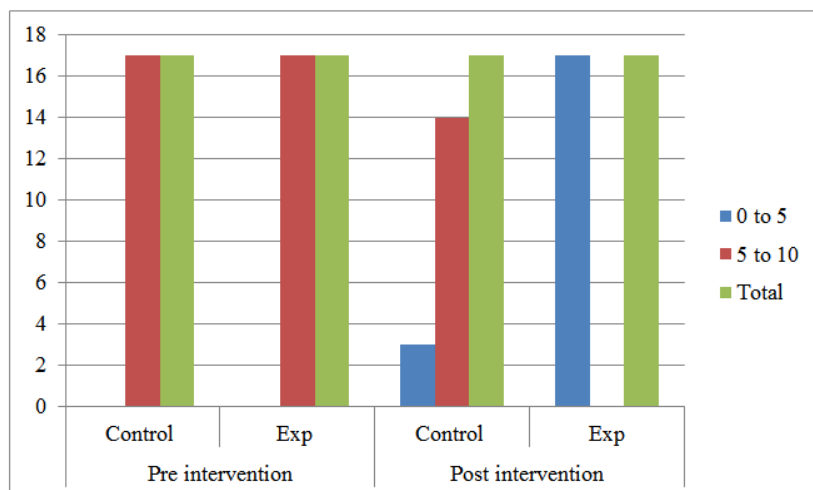
When subjects completed this technique for 5 days, they were again assessed with the help of visual analogue scale and proper analysis was done.

## Results

**Table 1:**

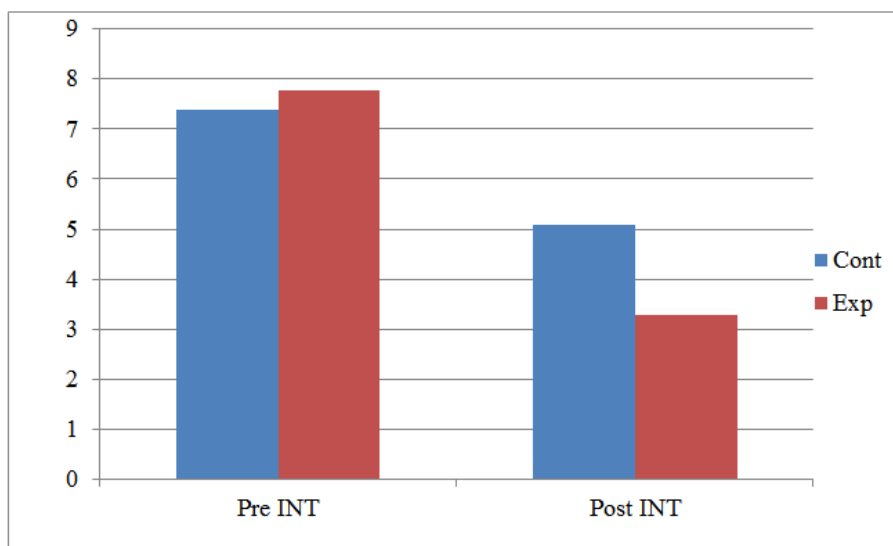
VAS Score	Pre Intervention		Post Intervention	
	Control	Experimental	Control	Experimental
0 to 5	0	0	3	17
%	0.0	0.0	17.6	100.0
5 to 10	17	17	14	0
%	100.0	100.0	82.4	0.0
Total	17	17	17	17
%	100.0	100.0	100.0	100.0

**Graph 1:**



Interpretation: Graph 1 shows visual analogue scale score which is divided in 2 ranges from 0 to 5 and 5 to 10.

Graph 2:



Graph 2 shows mean values of controlled and experimental groups before and after intervention with the help of visual analogue scale.

### Discussion

This study is a randomised controlled trial done on 34 subjects. There were 2 groups- controlled and experimental. Each group had 17 subjects. The interventional period was for 5 days. The study was done to assess the effect of Jacobson's progressive muscle relaxation technique for pain management in post cesaerean- section women.

In Jacobson's progressive muscle relaxation technique subjects were asked to contract and relax various group of muscles of the body.

The probable reason for this reduction in pain may be because of increased blood flow and promotes healing. Cellular level metabolism is activated to target and pain producing receptors (nociceptors) get washed off.<sup>7,8</sup> Thus in turn patients experiences reduction in level of pain.

Graph 1 shows visual analogue scale score is divided in 2 ranges from 0 to 5 and 5 to 10. Before intervention, 17 subjects of controlled group and 17 subjects of experimental group had pain between 5 to 10 whereas no subject had pain between 0 to 5. But after intervention, 17 subjects of experimental group had pain between 0 to 5 whereas 3 subjects of controlled group had pain between 0 to 5 and remaining (14) subjects had pain ranging from 5 to 10.

In Table 2 shows that before intervention, controlled group came to a mean of 7.38 which was reduced to 5.08 after intervention. In experimental group, before intervention came to a mean of 7.76 which was reduced to 3.29 after intervention. So there is mean difference between pain scores of controlled group is 2.3 and that of experimental group is 4.47.

So this study shows that there is significant difference in mean values between pain scores of controlled and experimental group on VAS score.

Pain is more reduced in experimental than controlled group.

Due to maternal post cesaerean section, adaptation to pain occurs in form of wound healing. When the wound is still wet tissues are not fused so that severe pain is felt. Once the tissue is dry and tissue connection occurs pain is reduced. Analgesics may delay the flow of recovery of patients for their sedative effects.<sup>2</sup>

Therefore to improve pain relief along with decreased requirement of analgesics can be achieved with use of relaxation technique to promote recovery and satisfaction of patients. Subjects who learned relaxation as a coping skill perceived as an increased amount of control over pain which decreased their anxiety and anticipation for pain.<sup>6</sup>

In previous similar study done by Tetti Solehati and Yeni Rustina they used benson relaxation technique to reduce pain intensity in women after cesaerean section and proved that the mean differences of incisional pain were statistically significant.

It supports the hypothesis that the use of relaxation technique could be used to decrease muscular tension and helps to increase comfort level of post operative C-section patients.

As one of the previous study done by Amin Ebnesahidi et al<sup>2</sup> in the title "The effect of patient-selected music on early postoperative pain, anxiety, and hemodynamic profile in cesarean section surgery" proved that the pain score was significantly reduced among cesaerean section in music group and use of selected music in cesaerean section surgery patients would alleviate pain and decreased need of analgesics to get improvement in recovery of patients.

### Conclusion

The results of our study concluded that the pain is more reduced in experimental than controlled group.

The study also shows that there is significant difference in mean values between pain scores of control and experimental group on VAS score.

**Clinical Implication:** Jacobson's progressive muscle relaxation technique can be used as an adjunct therapy along with pain medications as an effective treatment for pain management in post caesarean section women to improve functional activity and to promote early post operative recovery.

## References

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