

## A STUDY TO ASSESS THE EFFECTIVENESS OF FOOT MASSAGE ON REDUCTION OF POST OPERATIVE PAIN AMONG PRIMI CAESAREAN MOTHERS

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### ABSTRACT

A quantitative study was conducted to evaluate the effect of foot massage on reduction of post operative pain among primi caesarean mothers in a selected hospital at Kollam. The objectives of the study were, to evaluate the pre test post operative pain scores among primi caesarean mothers, effectiveness of foot massage on reduction of post operative pain among primi caesarean mothers and to find out the association between the pre test scores of post operative pain among primi caesarean mothers and selected demographic variables. Using a quantitative approach with Non- equivalent control group design, study conducted at Govt. Victoria Hospital, Kollam. 60 primi caesarean mothers, 30 each in the experimental and control group were selected using convenient sampling technique. The data were obtained using interview schedule and numerical pain scale. Foot massage including effleurage, petrissage, kneading and friction was given for the experimental group. Each massage was applied for 2 minutes and 30 seconds and each foot was massaged for 10 minutes. The content validity of the tools was done by the experts. The reliability of the pain scales was checked using Karl Pearson's correlation coefficient and tool was found reliable ( $r = 1$ ). Pilot study was conducted and the study was found to be feasible. The data collected were analyzed using descriptive and inferential statistics. Significance of difference between mean post operative pain was tested by using Paired 't' test which found to be significant. The association between pre test post operative pain scores and selected demographic variables were compared and tested using 'chi square' test. No significant association was found. Foot massage can be used as a complementary therapy for reducing post operative pain, having no side effects, provide diversion and relaxation.

**Key words:** Effectiveness; Foot massage; Post operative pain; Primi caesarean mothers; Effleurage; Petrissage; Kneading; Friction.

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### INTRODUCTION

Pain is an unpleasant sensation that can range from mild, localized discomfort to agony. Pain has both physical and emotional components. The physical part of pain results from nerve stimulation. Pain may be contained to a discrete area, or as in an injury [1].

Post operative pain is one of the most common therapeutic problems in hospitals. Strategies aimed at reducing post operative pain increase patient's comfort and can shorten hospital stay [2].

Caesarean section (C.S) is the birth of fetus through a trans-abdominal incision in the uterus. It is one of most common surgical procedures, worldwide. It has played a major role in lowering both maternal and perinatal morbidity and mortality rates during the past century. The initial purpose of the operation was to preserve the life of the mother with obstructed labour and her newborn [3]. Caesarean section is a prevalent operation that accounted for up to 32% of deliveries in the United States in 2007 [4].



A study was conducted by Dr.Abd Elhaleem et al. (2013) to evaluate the effectiveness of foot massage on relieving post caesarean pain in Egypt. The study was conducted among 148 caesarean mothers in postnatal room, 74 each in control and experimental group. Experimental group received 10 minutes foot massage for pain relief every 6 hours, 12 hours, and 18 hours. There were better satisfaction and pain relief among the experimental group. Hence Foot Massage was found to be effective in reducing pain after caesarean section [5].

Puthusseril V (2006) conducted an experimental study in, Trivandrum, Kerala, India, in palliative wards of Regional Cancer Centre. It proved that foot massage is effective in the overall wellbeing of palliative care patients at 0.05 level of significance. A 20 minutes foot massage was administered and the tools were Numerical Pain Scale and physiological measures [6].

### STATEMENT OF THE PROBLEM

A study to assess the effectiveness of foot massage on reduction of post operative pain among primi caesarean mothers in a selected hospital at Kollam.

### OBJECTIVES

1. To assess the pre test post operative pain scores among primi caesarean mothers in experimental and control group.
2. To evaluate the effectiveness of foot massage on reduction of post operative pain among primi caesarean mothers in experimental group by comparing with control group.
3. To find out the association between the pre test scores of post operative pain among primi caesarean mothers and selected demographic variables in experimental and control group.

### HYPOTHESES

H<sub>1</sub>-There will be a significant reduction in post operative pain after the foot massage among primi caesarean mothers in experimental group.

H<sub>2</sub>-There will be a significant association between pre test scores of post operative pain and selected demographic variables in experimental and control group.

### MATERIALS AND METHODS

Research approach used was quantitative approach. Research design was quasi experimental design. The study was conducted at Govt. Victoria Hospital, Kollam. Among 60 primi caesarean mothers, 30 each in the experimental and control group were selected using convenient sampling technique. Foot massage was given to the experimental group. It includes effleurage, petrissage, kneading and friction. Each massage was applied for 2 minutes and 30 seconds and each foot was massaged for 10 minutes. During the study routine care were given to the control group. The pilot study was conducted among 10 samples.

### TOOLS AND TECHNIQUES

In this study interview schedule was prepared to collect the sample characteristics. It includes

1. Age, education status, religion, marital status, time of conception after marriage, type of family, area of residence, occupational status, family monthly income, height, diet, weight gain during pregnancy, presence of family members in the post operative ward, previous surgeries, previous hospitalization, regular antenatal health visit, type of LSCS, hours of sleep, satisfaction with gender of the baby, been as a bystander to any post operative patients and any information regarding pain management during post caesarean section.
2. Standardized Numerical pain scale

### Scoring Method

The scale ranges from 0-10. Zero indicates “no pain” 1-3 indicates mild pain, 4-6 indicates moderate pain and 7-10 indicate “unbearable pain”.

### Data Collection Process

After getting permission from Govt. Victoria Hospital, the investigator visited the post operative ward every day and met the participants personally and selected the samples according to inclusion and exclusion criteria. Experimental group were given the instructions regarding the effect of foot massage on reduction of post operative pain, clarified their doubts and consent was taken from them. They were given foot massage. Then post operative pain assessed by Numerical pain scale prior to and after the intervention. Initial assessment was done among control group, based on inclusion and exclusion criteria and consent were obtained from them in post operative ward. Following this, pre test and post test pain scores are obtained using Numerical pain scale.

### ANALYSIS AND INTERPRETATION

The data obtained using both descriptive and inferential statistics. Statistical significance of effect of foot massage on reduction of post operative pain among primi caesarean mothers were analysed using paired ‘t’ test and association between pre test scores of labour pain with selected demographic variables were analysed using Chi square test.

### RESULTS

Data presented in table 1 describes about the demographic variables in experimental group, majority of the sample (60%) belongs to the age group of 23-27 years, educated upto graduate (80%) and believing in Hinduism (50%). 100% of primi caesarean mothers were married and conceived within 1 year after marriage (56.67%). They were residing in nuclear family (100%) in rural area (73.33%). Majority of the primi caesarean (93.33%) were



unemployed and only 6.67% were employed having the are having height 141-150 cms and 100% of primi caesarean mothers were non vegetarians and they gained 6-11 kg body weight (76.67%) and all of them had their family members in the post operative ward and none of them had previous surgeries and 93.33% of them not admitted to the hospital previously and 3.33% of them admitted to the hospital previously and they attended the antenatal checkups regularly 100% and 66.67% posted for emergency LSCS and 96.67% slept 5-8 hours regularly and 100% of them satisfied with the gender of the baby and none of them hadn't been as a bystander to any post operative patients and (20%) of them had previous knowledge regarding post caesarean pain and its management.

In control group majority of the sample (73.33%) belongs to the age group of 23-27 years, educated upto graduate (60%) and believing in Hinduism (40%). 100% of primi caesarean mothers were married and conceived within 1 year after marriage (76.67%). They were residing in nuclear family (100%) in rural area (66.67%). All of the primi caesarean (100%) were unemployed and having the family income below Rs10000/- (90%). 63.33% of them are having height 141-150 cm and 100% of primi caesarean mothers were non vegetarians and they gained >11 kg body weight (60%) and all of them had their family members in the post operative ward and none of them had previous surgeries and none of them not admitted to the hospital previously and they attended the antenatal checkups regularly (100%) and all of them posted for emergency LSCS and 53.34% slept >8 hours regularly and 100% of them satisfied with the gender of the baby and none of them hadn't been as a bystander to any post operative patients and none of them had previous

family income below Rs10000/- (90%). 63.33% of them knowledge regarding post caesarean pain and its management.

Figure 1 Compares the post operative pain in experimental group and control group, among experimental group 14 had moderate pain and 16 had severe pain whereas in control group 11 had moderate pain and 19 had severe pain. However after the post test the 13 sample of experimental had moderate pain and 15 had severe pain. Meanwhile in control group 1 had moderate pain and 29 had severe pain. This shows that there is reduction in post operative pain after the foot massage in primi caesarean mothers.

The finding in table 2 shows the effectiveness of foot massage in experimental group by comparing with control group the mean post test score of experimental group was 5.43 and in control group 7.33. This shows that mean post test score of experimental group is less than that of control group. Hence research hypothesis H<sub>1</sub> is accepted. The calculated paired 't' value for post test was 11.27\* respectively which is greater than the table value 2.045 at 0.05 level of significance. This shows that foot massage was effective in reduction of post operative pain.

Data presented in table 3 reveals the association between pre test pain scores with selected demographic variables. All the chi-square values related to age, education, time of conception after marriage, weight gain during pregnancy (n=60) are less than that of table value at 0.05 level of significance. Therefore, the researcher fails to support the research hypothesis (H<sub>2</sub>). Thus, it can be concluded that there is no significant association between pre test scores of post operative pain and selected demographic variables.

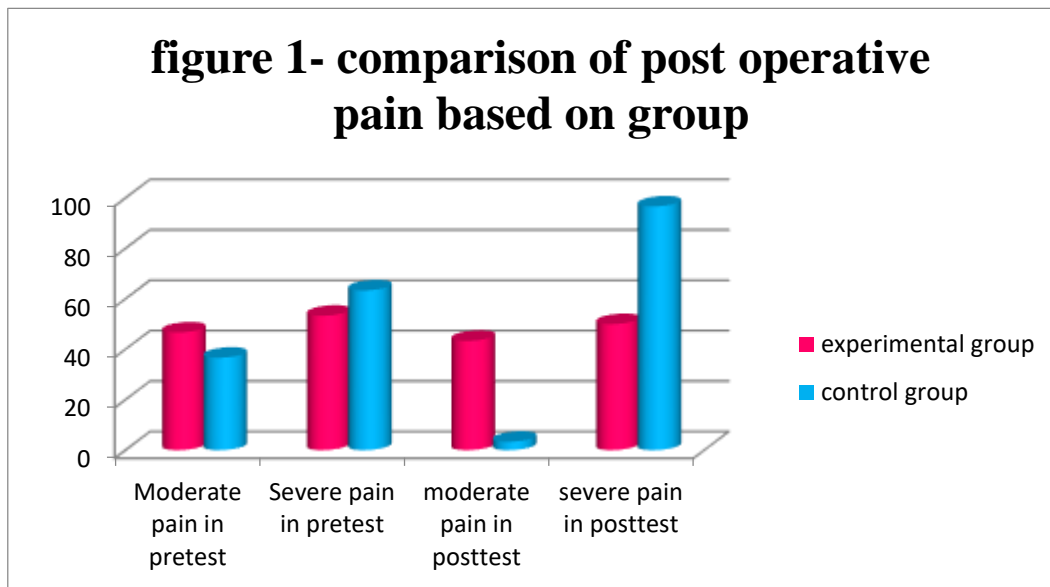
**Table 1. Distribution of demographic variables based on groups**

| Demographic variables | Experimental group |            | Control group |            |
|-----------------------|--------------------|------------|---------------|------------|
|                       | frequency          | Percentage | frequency     | Percentage |
| 18-22 years           | 8                  | 26.67      | 8             | 26.67      |
| 23-27 years           | 18                 | 60         | 22            | 73.3       |
| 28-32 years           | 4                  | 13.33      | 0             | 0          |
| Graduate              | 24                 | 80         | 18            | 60         |
| Secondary education   | 6                  | 20         | 12            | 40         |
| Hindu                 | 15                 | 50         | 12            | 40         |
| Muslim                | 11                 | 36.67      | 11            | 36.67      |
| Christian             | 4                  | 13.33      | 7             | 23.33      |
| Married               | 30                 | 100        | 30            | 100        |
| Within 1 year         | 17                 | 56.67      | 23            | 76.67      |
| 1-2 year              | 13                 | 43.33      | 7             | 23.33      |
| Nuclear family        | 30                 | 100        | 30            | 100        |
| Rural                 | 22                 | 73.33      | 20            | 66.67      |
| Urban                 | 8                  | 26.67      | 10            | 33.33      |
| Employed              | 2                  | 6.67       | 30            | 100        |
| Unemployed            | 28                 | 93.33      | 0             | 0          |
| Below 10000           | 27                 | 90         | 27            | 90         |



|   |     |       |    |       |
|---|-----|-------|----|-------|
| 10001-20000   | 1   | 3.33  | 3  | 10    |
| Above 20000   | 2   | 6.67  | 0  | 0     |
| Height 141-150  | 19  | 63.33 | 19 | 63.33 |
| Height 150- 160   | 10  | 33.33 | 11 | 36.67 |
| Height 161 and above                                    | 1   | 3.34  | 0  | 0     |
| Non vegetarian  | 30  | 100   | 30 | 100   |
| weight gain during pregnancy <6kg                       | 1   | 3.33  | 0  | 0     |
| weight gain during pregnancy 6-11kg                     | 23  | 76.67 | 12 | 40    |
| weight gain during pregnancy >11kg                      | 6   | 20    | 18 | 60    |
| presence of family members in post operative ward       | 30  | 100   | 30 | 100   |
| previous surgeries                                      | 30  | 100   | 30 | 100   |
| any previous hospitalization during pregnancy- yes      | 2   | 6.67  | 0  | 0     |
| No  | 28  | 93.33 | 30 | 100   |
| regular antenatal health visit                          | 30  | 100   | 30 | 100   |
| sample according to type of LSCS elective               | 10  | 33.33 | 0  | 0     |
| Emergency   | 20  | 66.67 | 30 | 100   |
| according to hours of sleep <5 hours                    | 0   | 0     | 1  | 3.33  |
| hours of sleep 5-8 hours                                | 29  | 96.67 | 13 | 43.33 |
| hours of sleep >8 hours                                 | 1   | 3.33  | 16 | 53.34 |
| satisfaction with gender of the baby- yes               | 30  | 100   | 30 | 100   |
| been as a bystander to any post operative patients –yes | 0   | 0     | 0  | 0     |
| been as a bystander to any post operative patients –no  | 30  | 100   | 30 | 100   |
| prior information regarding pain management -yes        | Yes | 6     | 20 | 4     |
| prior information regarding pain management- no         | No  | 24    | 80 | 26    |

**figure 1- comparison of post operative pain based on group**



**Table 2. Effectiveness of foot massage in experimental group by comparing with control group.**

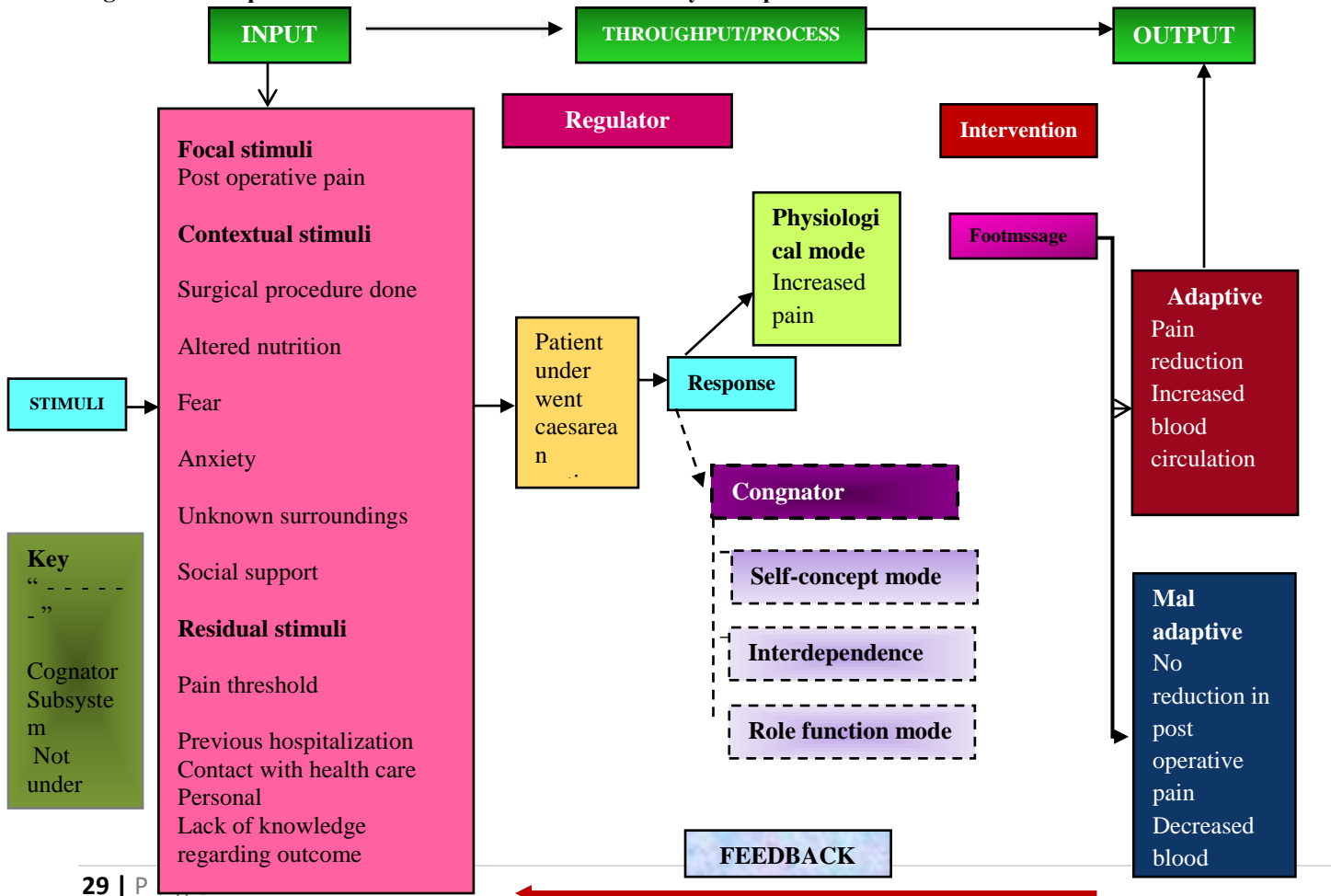
| observation |              | Mean   | Standard Deviation | t        | P     |
|-------------|--------------|--------|--------------------|----------|-------|
| pretest     | Experimental | 6.53   | 0.507              | 0.9017   | 2.045 |
|             | Control      | 6.6333 | 0.4901             |          |       |
| Posttest    | Experimental | 5.43   | 0.626              | 11.2761* | 2.045 |
|             | Control      | 7.3333 | 0.5467             |          |       |

**Table 3. Assessment of association between the pre test pain scores with selected demographic variables.**

| Demographic variables |               | Moderate |            | Severe |            | $\chi^2$ | P    |
|-----------------------|---------------|----------|------------|--------|------------|----------|------|
|                       |               | Count    | Percent(%) | Count  | Percent(%) |          |      |
| Age                   | 18-22         | 6        | 60         | 4      | 40         | 1.8197   | 3.84 |
|                       | 23-27         | 15       | 36.6       | 26     | 63.4       |          |      |
| Education             | Graduate      | 15       | 35.7       | 27     | 64.3       | 2.0408   | 3.84 |
|                       | Secondary     | 10       | 55.6       | 8      | 44.4       |          |      |
| Time of conception    | Within 1 Year | 19       | 46.3       | 22     | 53.7       | 0.4771   | 3.84 |
|                       | 1-2 Year      | 7        | 36.8       | 12     | 63.2       |          |      |
| Weight Gain           | 6-11 kg       | 14       | 40         | 21     | 60         | 0.1984   | 3.84 |
|                       | >11kg         | 11       | 47.8       | 13     | 54.2       |          |      |

\*:- significant at 0.05 level

**Figure 2. Conceptual frame work based on Sr. Callista Roy's adaptation model**



## DISCUSSION

In the present study, quantitative approach with convenient sampling technique was used. Among experimental group 14 had moderate pain and 16 had severe pain whereas in control group 11 had moderate pain and 19 had severe pain. However after the post test the 13 sample of experimental had moderate pain and 15 had severe pain. Meanwhile in control group 1 had moderate pain and 29 had severe pain. This shows that there is reduction in post operative pain after the foot massage among primi caesarean mothers.

The mean post test score of experimental group was 5.43 and in control group 7.33. This shows that mean post test score of experimental group is less than that of control group. Hence research hypothesis  $H_1$  is accepted. The calculated paired 't' value for post test was 11.27\* respectively which is greater than the table value 2.045 at 0.05 level of significance. This shows that foot massage was effective in reduction of post operative pain.

## CONCLUSION

Based on the findings of the study the following conclusions were derived

- The mean post operative pain score of primi caesarean mothers in experimental is less than that of control group. Hence it is concluded that, foot massage has a significant effect on reducing post operative pain among primi caesarean mothers.
- There is no association between the pre test scores of post operative pain among primi caesarean mothers and selected demographic variables such as age, education, time of conception after marriage and weight gain during pregnancy in experimental and control group.

Hence it is concluded that foot massage is effective in reducing post operative pain among primi caesarean mothers.

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## NURSING IMPLICATION

Expansion in the use of complementary therapy has a need for chapter devoted to role in nursing practice, education, research and administration. Among nurses, foot massage is rarely used as a complementary therapy.

## NURSING PRACTICE

The planned use of foot massage to mothers and care givers can be an aid to post operative care and an important adjunct in pain management during post operative period. The nurses can prepare the bystanders in the post operative ward itself to use foot massage as a conditioning aid to inspire them for post operative pain relief. Nurses can arrange classes for pain relief measures with complementary and alternative therapies during post operative period.

## NURSING EDUCATION

Nurse educators can include use of complementary and alternative therapies in nursing curriculum with increasing frequency and can motivate at least in part by the ever increasing public enthusiasm for these therapies.

## NURSING ADMINISTRATION

The nurse administrators can act as a clinical supervisor where by solve practitioners clinical problem related to alternative and complementary therapy, focus on nurses strengths and difficulties and should be a feature of basic education and continuing professional development. Clinical supervisors can learn about foot massage by attending conferences and obtaining certificates and can train other practitioners or nurse instructors.

## NURSING RESEARCH

Nurses should participate in research on complementary therapy either as principal investigator or as a member of inter disciplinary team. The nurses should take initiative to conduct more research on post operative pain management, which helps to provide quality care for the mother in post operative ward.

