

A Comparative Study to Assess the Effectiveness of Hand Massage and Foot Massage on Pain Reduction among Post Cesarean Mothers at Gauhati Medical College & Hospital, Guwahati, Assam

Pompi Baishya¹, Syed Ridhwaanah²

¹M.Sc. Nursing

E-mail: [pombaishya42\[at\]gmail.com](mailto:pombaishya42[at]gmail.com)

²Assistant Professor

E-mail: [ridhu.nursing\[at\]gmail.com](mailto:ridhu.nursing[at]gmail.com)

Abstract: ***Background:** Cesarean section is the most frequently performed surgery in the world. WHO reviewed 1,07,950 births from nine countries in Asia including India, China, Japan, Nepal and Sri Lanka during 2007-2008, and found that 27% births were delivered by cesarean section. The word massage is derived from the Latin word "Massa" meaning to touch, handle, squeeze or knead. Massage is a powerful part of pain management which provides relaxation and reduces stress to the patient. In India, massage therapy is licensed by The Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) under the Ministry of Health and Family Welfare (India) in March 1995. **Objective of the study:** To compare the effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers. **Material and Methods:** A Quantitative Research approach with quasi experimental non randomized control group design was adopted. Convenient sampling technique was used to select 60 post cesarean mothers among which 20 were in hand massage group, 20 were in foot massage group and 20 were in control group. The data was collected using demographic performa, Numerical Pain Rating Scale for post cesarean pain assessment. Hand massage was given to hand massage group for 5 minutes in each hand, total of 10 minutes for 2 times a day (morning and evening) with olive oil for first 2 days and, foot massage was given to foot massage group for 5 minutes in each foot, total of 10 minutes for 2 times a day (morning and evening) with olive oil for first 2 days. Data was analyzed using descriptive and inferential statistics. **Result:** The effectiveness of hand massage and foot massage of post-test pain score among post cesarean mothers in hand massage group and foot massage group showed that mean post-test pain score in hand massage group was 4.75 ± 0.910 and mean post-test pain score in foot massage group was 1.75 ± 0.910 with mean difference was 3.0. Comparison between mean post-test pain score in hand massage group and foot massage group was done using unpaired "t" test with obtained t value ($t=10.42$) at $df=38$ was statistically highly significant at $p<0.05$ level. Hence research hypothesis (H_0) is accepted and null hypothesis (H_{06}) is rejected and is concluded that that foot massage was more effective in pain reduction among post cesarean mothers as compared to hand massage group.*

Keywords: Effectiveness, Hand Massage, Foot Massage, Pain, Post Cesarean Mothers

1. Introduction

"Motherhood is the biggest gamble in the world. It is the glorious life force. It is huge and scary-it's an act of infinite optimism."

- Gilda Rander

Pregnancy is a special event not only in the life of women but also to the entire family, where change occurs early to provide a favorable outcome for both mother and fetus.¹ Cesarean section is an operative procedure whereby the fetus, placenta and membranes are delivered through an incision made in the abdominal wall and uterus, which is carried out under anesthesia (regional or general).²

Pain is a multidimensional phenomenon and is therefore difficult to define. It is a personal and subjective experience, and no one experience pain in exactly the same manner. It is not merely a manifestation of a medical condition. Pain often leads to debilitation, diminished quality of life, and depression. Effective pain control is best achieved through a combination of both pharmaceutical and non-pharmaceutical therapies.³

Massage is a technique that applies pressure to parts of the body. Massage is a natural way of light touching, rubbing the entire body gives comfort both physically and psychologically and gives general relaxation in the body, reducing pain perception, good sleep, by affecting the locomotor system and the nervous system as well as cardiovascular system.⁴ Foot and hand massage is one of the cheapest and cost effective method to reduce pain among post-operative patients.² Foot and hand massage stimulates the nerve fibers to produce pain-relieving endorphins.⁵ Hand massage is a type of reflexology in which parts of the hands are rubbed with the fingertips, knuckles, and blunt with the purpose of stimulating nerve endings for various organs believed to be present in the hands. Foot massage is a technique which is used for relaxation and to alleviate the sore soles and arches.⁴

2. Background of the Study

Cesarean section is the most frequently performed surgery in the world. These are common than most surgeries due to many factors, one factor is certain, that nearly 50% of world population are women and pregnancy is still a common condition. WHO reviewed 1,07,950 births from nine

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countries in Asia including India, China, Japan, Nepal and Sri Lanka during 2007-2008, and found that 27% births were delivered by cesarean section. Rates of cesarean section in many countries have increased beyond the WHO recommended level of 15%, almost doubling in the last decade, especially in high-income areas such as Australia, France, Germany, Italy, North America and UK. Similar trends have also been documented in developing countries such as Brazil, China and India, especially for births in private hospitals. Birth by Cesarean sections, has now started to increase, globally. Nearly one in every two births in China women is delivered by cesarean section, the rate is around two in five in Thailand and Vietnam and nearly one in five in India.⁶ The word massage is derived from the Latin word "Massa" meaning to touch, handle, squeeze or knead.² Massage is a powerful part of pain management which provides relaxation and reduces stress to the patient.⁷ It is the simple way of easing post-operative pain as well as aiding relaxation, promoting a feeling of well-being and a sense of receiving good care. In India, massage therapy is licenced by the Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH) under the Ministry of Health and Family Welfare (India) in March 1995. Massage therapy is based on Ayurveda, the ancient medicinal system that evolved around 600 BC.²

3. Need for the study

A Cesarean section is usually performed when a vaginal delivery would put the baby's or mother's life at risk, although in recent times it has been also performed upon request for childbirths that could otherwise have been natural.⁸

The incidence of cesarean section is steadily rising. In the last few decades, the cesarean section rates have increased dramatically in the developed countries. Thirty-two percent of all births in the United States occur by Cesarean section. The operations have been increasing steadily; and have become the most common surgery in American hospitals.⁹

Post-operative pain can have a significant effect on patient recovery. To understand patient's attitude and concern about post-operative pain it is important for identifying various ways. Negative outcome results from ineffective post-operative pain management which includes deep vein thrombosis, pulmonary embolism, coronary ischemia, insomnia, myocardial infraction, pneumonia and demoralization. Economic and medical implication are as associated with these complications are such as extended length of staying hospital, patient dissatisfaction with medical care or treatment.¹⁰

Pharmacological agents create harmful effects on the women's health status. Therefore, the health professional must explore alternative approaches to provide better care and promote healthy atmosphere.¹¹

There are several pharmacological measures to control pain and anxiety, but in recent years several studies have done on non-pharmacological measures of pain management due to their temporary effects and side-effects of pharmacological measures such as benzodiazepines and analgesics. Two of

the widely accepted non-pharmacological measures are reflexology (a form of foot massage and hand massage) and simple massage therapy.¹²

Najar S (2012) conducted a study on effect of foot massage and hand massage in post-cesarean section pain control: A randomized controlled trial and aim was to determine the effect of hand and foot massage on post cesarean pain, which was performed in Mustafa Khomeini Hospital, Elam, Iran. 80 samples were taken and visual analogue scale (VAS) was used to determine the pain intensity. The pain intensity was found to be reduced after intervention compared with the intensity before the intervention.¹³

The researcher, during her clinical experience, had found that many of the post cesarean mothers, after a cesarean section suffered from pain. The researcher also noticed that most of the mothers were not able to breastfeed the babies because of increased pain after cesarean section. Physiological responses to pain create harmful effects that prolong the body's recovery after surgery. Patients routinely report mild to moderate pain even though pain medications have been administered. Complementary strategies based on sound research findings are needed to supplement postoperative pain relief using pharmacologic management. Foot and hand massage has the potential to assist in pain relief. The feet are the hardest worker of all body parts. Each part of the foot is linked to another, often distant, part of the body, with influence extending not just to the muscles but also to the vital organs as well.² Many researchers had done experimental study to see the effectiveness of Foot and hand massage on pain reduction and it appears to be an effective, inexpensive, low risk, flexible and easily applied strategy for postoperative pain management. So, the researcher wanted to know which massage is more effective for the post cesarean pain management. Therefore, researcher have chosen to compare the hand massage and foot massage, to check which one is more effective for the post cesarean pain reduction.

Problem Statement

A comparative study to assess the effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers at Gauhati Medical College & Hospital, Guwahati, Assam.

Objectives

General objective:

To compare the effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers.

Specific Objectives:

- 1) To assess the pain score among post cesarean mothers in hand massage group, foot massage group and control group.
- 2) To evaluate the effectiveness of hand massage on pain reduction among post cesarean mothers in hand massage group.
- 3) To evaluate the effectiveness of foot massage on pain reduction among post cesarean mothers in foot massage group.

- 4) To compare the pre-test and post-test pain score among post cesarean mothers in control group.
- 5) To evaluate the effectiveness of hand massage of post-test pain score among post cesarean mothers in hand massage group and control group.
- 6) To evaluate the effectiveness of foot massage of post-test pain score among post cesarean mothers in foot massage group and control group.
- 7) To compare the effectiveness of hand massage and foot massage of post-test pain score among post cesarean mothers in hand massage group and foot massage group.

Operational definition

Effectiveness:

Effectiveness refers to the extent to which hand massage and foot massage technique reduces the pain among post cesarean mothers as measured by Numerical pain rating scale.

Hand Massage:

It refers to manipulation of hands of the post caesarean mothers by stroking, effleurage, finger strolling and arch press by both palms of the investigator with olive oil.

Foot Massage:

It refers to manipulation of feet of the post caesarean mothers by stroking, effleurage, finger strolling and arch press by both palms of the investigator with olive oil.

Pain:

Pain is a subjective feeling that is experienced by mothers from the day of cesarean section and is assessed by using numerical pain rating scale.

Post cesarean Mothers:

Both primi and multigravida mothers who have undergone cesarean section, are post cesarean mothers.

Assumptions

- The mothers those who have undergone cesarean section may have pain.
- Massage would be a complementary measure that will help to reduce the pain.

Hypothesis

(All hypotheses are tested at 0.05 level of significance)

H₁: There is significant difference between the pre-test and post-test pain score among post cesarean mothers in hand massage group.

H₂: There is significant difference between the pre-test and post-test pain score among post cesarean mothers in foot massage group.

H₃: There is significant difference between the pre-test and post-test pain score among post cesarean mothers in control group.

H₄: There is significant difference between the post-test pain score among post cesarean mothers in hand massage group and control group.

H₅: There is significant difference between the post-test pain score among post cesarean mothers in foot massage group and control group.

H₆: There is significant difference between the post-test pain score among post cesarean mothers in hand massage group and foot massage group.

Delimitation

- Postnatal mothers who are admitted in the postnatal ward.
- Specific period of data collection is 4 weeks.

Research Methodology

A quantitative research approach is used for the present study and a Quasi Experimental Non Randomized Control Group design was adopted to compare the effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers at Gauhati Medical College & Hospital, Guwahati, Assam. The study population was the post cesarean mothers and total 60 samples (20 hand massage group and 20 foot massage group and 20 control group) are selected by Convenient sampling technique for the study based on the study criteria. The variables are divided as

- Independent variable: Hand massage and Foot massage.
- Dependent variable: Post cesarean pain.
- Demographic variables: Age in years, educational status, occupation, type of family, religion, residence, source of information regarding hand massage and foot massage.
- Obstetrical Information: Parity, previous history of cesarean section.

4. Analysis and Interpretation

The analysis of data was organized under the following sections.

Section 1: Distribution of demographic proforma among post cesarean mothers in Hand massage group, Foot massage group and Control group.

Section 2: Distribution of pre-test and post-test level of post cesarean pain among post cesarean mothers in Hand massage group, Foot massage group and Control group.

Section 3: Effectiveness of hand massage on pain reduction among post cesarean mothers in hand massage group.

Section 4: Effectiveness of foot massage on pain reduction among post cesarean mothers in foot massage group.

Section 5: Comparison of pre-test and post-test pain score among post cesarean mothers in control group.

Section 6: Effectiveness of hand massage of post-test pain score among post cesarean mothers in hand massage group and control group.

Section 7: Effectiveness of hand massage of post-test pain score among post cesarean mothers in foot massage group and control group.

Section 8: Effectiveness of post-test pain score among post cesarean mothers in hand massage group and foot massage group.

Section 1: Distribution of demographic proforma among post cesarean mothers in Hand massage group, Foot massage group and Control group, N=60 (20+20+20)

Sl no.	Particulars	Hand massage group		Foot massage group		Control Group	
1.	Age in years	f	%	F	%	f	%
A	≤ 20 years	1	5	2	10	0	0
B	21-25 years	5	25	11	55	6	30
C	26-30 years	12	60	7	35	12	60
D	≥30 years	2	10	0	0	2	10
2.	Educational status	-	-	-	-	-	-
A	High school	1	5	2	10	2	10
B	Higher secondary	12	60	13	65	13	65
C	Graduation and above	7	35	5	25	5	25
3.	Occupation	-	-	-	-	-	-
A	Housewife	16	80	14	70	17	85
B	Self employed	3	15	5	25	2	10
C	Service	1	5	1	5	1	5
4.	Type of family	-	-	-	-	-	-
A	Nuclear family	6	30	5	25	4	20
B	Joint family	14	70	15	75	16	80
5.	Religion	-	-	-	-	-	-
A	Hinduism	10	50	9	45	7	35
B	Muslim	10	50	11	55	13	65
6.	Residence	-	-	-	-	-	-
A	Rural	15	75	12	60	16	80
B	Urban	5	25	8	40	4	20
7.	Source of information	-	-	-	-	-	-
A	No information	16	80	17	85	17	85
B	Relatives/Friends	4	20	3	15	3	15
8.	Parity	-	-	-	-	-	-
A	Primi	14	70	16	80	17	85
B	Multi	6	30	4	20	3	15
9.	Previous history of cesarean section	-	-	-	-	-	-
A	Yes	3	15	2	10	5	25
B	No	17	85	18	90	15	75

Section 2: Distribution of pre-test and post-test level of post cesarean pain among post cesarean mothers in Hand massage group, Foot massage group and Control group.

Table 1: Frequency and percentage distribution of level of pain among post cesarean mothers in hand massage group, foot massage group and control group, N=60

Level of pain	Hand massage group				Foot massage group				Control group			
	Pre-test		Post-test		Pre-test		Post-test		Pre-test		Post-test	
	f	%	f	%	f	%	f	%	f	%	F	%
No pain	0	0	0	0	0	0	2	10	0	0	0	0
Mild	0	0	2	10	0	0	18	90	0	0	0	0
Moderate	0	0	18	90	0	0	0	0	0	0	1	5
Severe	18	90	0	0	17	85	0	0	16	80	16	80
Worst	2	10	0	0	3	15	0	0	4	20	3	15

Section 3: Effectiveness of hand massage on pain reduction among post cesarean mothers in hand massage group.

Table 2: Mean, Standard deviation, Mean Difference, “t” Value, Degree of freedom (df) And “p” value of pre-test and post-test level of pain in hand massage group, n=20

Hand massage group	Mean	SD	Mean Difference	t test value	Df	p value
Pre-test	8.80	0.834	4.05	29.94	19	0.001**
Post-test	4.75	0.910				

**p<0.01 level of significance

Section 4: Effectiveness of foot massage on pain reduction among post cesarean mothers in foot massage group.

Table 3: Mean, standard deviation, mean difference, “t” vaue, degree of freedom (df) and “p” value of pre-test and post-test level of pain in foot massage group, n=20

Foot massage group	Mean	SD	Mean Difference	t test value	Df	p value
Pre-test	8.80	0.834	7.05	80.15	19	0.001**
Post-test	1.75	0.910				

**p<0.01 level of significance

Section 5: Comparison of pre-test and post-test pain score among post cesarean mothers in control group.

Table 4: Mean, Standard deviation, Mean difference, “t” value, degree of freedom (df) and “p” value of pre-test and post-test level of pain in control group, n=20

Control group	Mean	SD	Mean Difference	t test value	Df	p value
Pre-test	8.90	0.852	0.25	2.032	19	0.056 ^{NS}
Post-test	8.65	1.089				

*p<0.05 level of significance

NS= Non significant

Section 6: Effectiveness of hand massage of post-test pain score among post cesarean mothers in hand massage group and control group.

Table 5: Mean, standard deviation (SD), Mean difference, “t” value, degree of freedom (df), “p” value for comparison of post-test level of pain among post cesarean mothers between hand massage group and control group, N= 40 (20+20)

Comparison group	Mean	SD	Mean Difference	t test value	Df	p value
Hand massage group	4.75	0.910	3.90	12.28	38	0.001**
Control group	8.65	1.089				

**p<0.01 level of significance

Section 4.3.7: Effectiveness of hand massage of post-test pain score among post cesarean mothers in foot massage group and control group.

Table 6: Mean, standard deviation (SD), Mean difference, “t” value, degree of freedom (df), “p” value for comparison of post-test level of pain among post cesarean mothers between foot massage group and control group, N= 40 (20+20)

Comparison group	Mean	SD	Mean Difference	t test value	Df	p value
Foot massage group	1.75	0.910	6.90	21.73	38	0.001**
Control group	8.65	1.089				

**p<0.01 level of significance

Section 8: Effectiveness of post-test pain score among post cesarean mothers in hand massage group and foot massage group.

Table 7: Mean, standard deviation (SD), Mean difference, “t” value, degree of freedom (df), “p” value for comparison of post-test level of pain among post cesarean mothers between hand massage group and foot massage group, N= 40 (20+20)

Comparison group	Mean	SD	Mean Difference	t test value	Df	p value
Hand massage group	4.75	0.910	3.0	10.42	38	0.001**
Foot massage group	1.75	0.910				

**p<0.01 level of significance

5. Discussion

Objective 1: To assess the pain score among post cesarean mothers in hand massage group, foot massage group and control group.

The statistical findings in this study revealed that, the pre-test and post-test level of post cesarean pain among post cesarean mothers in hand massage group, majority 18(90%) had severe pain and 2(10%) had worst pain while in post-test majority 19(90%) had moderate pain and 2(10%) had mild pain. In foot massage group majority 17(85%) had severe pain and 3(15%) had worst pain where as in post-test majority 18(90%) had mild pain and 2(10%) had no pain. In control group pre-test majority 16(80%) had severe pain and 4(20%) had worst pain where as in post-test majority 16(80%) had severe pain, 3(15%) had worst pain and 1(5%) had moderate pain.

This finding supported by Niven R. Basyouni, Jsis E. Gobar, Naglaa F. Zaied (2018) study on Effect of foot reflexology on post-cesarean pain conducted at postnatal cesarean ward of El-Shatby Maternity University Hospital in Alexandria Governorate. Johansson Pain-0- Meter Scale (JPOM) was used as tool. The study revealed that in experimental group (foot reflexology group) majority 19 (54.3%) had severe pain, 5 (14.3%) had worst pain and 11 (31.4%) had moderate pain; while in post-test majority 19 (54.3%) had mild pain, 10 (28.6%) had moderate pain. In control group pre-test majority had 16 (45.7%) had severe pain, 15 (42.9%) had moderate pain and 4 (11.4%) had worst pain where as in post-test majority 17 (48.6%) had severe pain, 16 (45.7%) had moderate pain and 2 (5.7%) had worst pain.¹⁴

Objective 2: To evaluate the effectiveness of hand massage on pain reduction among post cesarean mothers in hand massage group.

The statistical findings in this study revealed that, hand massage was effective in reducing pain among post cesarean mothers in hand massage group. Mean pain score in pre-test was 8.80±0.834 and mean pain score in post-test was 4.75±0.910 with mean difference was 4.05. Comparison between mean pre-test and post-test score was done using paired “t” test with obtained t value (t=29.94) at df=19 was statistically highly significant at p<0.05 level.

This finding supported by Babu Jayanthi, M Annie Annal, Renuka K (2019) true experimental study on Effectiveness of Hand Massage vs Foot Massage for Pain in Incision Site among Post-cesarean Mothers Admitted in Obstetrical Care Units at Mahatma Gandhi Medical College and Research Institute, Puducherry. This study reveals that In the hand massage group, the pre- and posttest median values were 6 and 5, respectively. The obtained Wilcoxon signed-rank test value was -4.939. It was highly statistically significant at p<0.001 level in the hand massage group which concluded hand massage was effective in reducing pain among post cesarean mothers in hand massage group.⁴

Objective 3: To evaluate the effectiveness of foot massage on pain reduction among post cesarean mothers in foot massage group.

The effectiveness of foot massage on pain reduction among post cesarean mothers in foot massage group. Mean pain score in pre-test was 8.80 ± 0.834 and mean pain score in post-test was 1.75 ± 0.910 with mean difference was 7.05. Comparison between mean pre-test and post-test score was done using paired "t" test with obtained t value ($t=80.15$) at $df=19$ was statistically highly significant at $p<0.05$ level. Findings revealed that foot massage was effective in reducing pain among post cesarean mothers in foot massage group. Hence, research hypothesis is accepted (H_2) and null hypothesis (H_{02}) is rejected.

This finding supported by JM Ashabiya, and Reeta Jebakumari Solomon (2018) experimental study on Effectiveness of foot reflexology on post caesarean pain among mothers who had caesarean section. True experimental pretest posttest control group design was adopted and simple random sampling technique was used to select the samples. The study revealed Mean post-test level of pain in experimental group (foot massage group) on 0 hour (5.4), 6th hour (5), 12th hour (4), 18th hour (2.4), 24th hour (1.8) were lesser than the mean pretest score at 0 hour (7.6), 6 hour (5.9), 12 hour (5.4), 18 hour (5), 24 hour (4). The mean difference was high and statistically significant at $p<0.05$.¹⁵

Objective 4: To compare the pre-test and post-test pain score among post cesarean mothers in control group.

The comparison of pre-test and post-test pain score among post cesarean mothers in control group shows that mean pain score in pre-test was 8.90 ± 0.852 and mean pain score in post-test was 8.65 ± 1.089 with mean difference was 0.25. Comparison between mean pre-test and post-test score was done using paired "t" test with obtained t value ($t=2.032$) at $df=19$ was statistically non significant at $p<0.05$ level. Findings revealed that there was no reduction of pain among post cesarean mothers in control group. Hence, research hypothesis (H_3) is rejected and null hypothesis (H_{03}) is accepted.

This finding supported by Sunila Thottingal (2013) study to assess the effect of foot reflexology on pain and discomfort of mothers after cesarean section in Bangalore. The study result revealed foot reflexology was effective in reducing pain and discomfort of mothers who have undergone cesarean section. In the control group, all the mothers (100%) had worst pain in the first day both pre-test and post-test scores whereas in day 2 majority (100%) of the mothers had worst pain in pre-test and about 77% had worst pain and 23% had moderate pain in post-test.⁵

Objective 5: To evaluate the effectiveness of hand massage of post-test pain score among post cesarean mothers in hand massage group and control group.

The effectiveness of hand massage of post-test pain score among post cesarean mothers in hand massage group and control group shows that mean post-test pain score in hand massage group was 4.75 ± 0.910 and mean post-test pain score in control group was 8.65 ± 1.089 with mean difference was 3.90. Comparison between mean post-test pain score in hand massage group and control group was done using unpaired "t" test with obtained t value ($t=12.28$) at $df=38$ was statistically highly significant at $p<0.05$ level. Findings

revealed that hand massage was effective in reducing pain among post cesarean mothers as compared to control group. Hence research hypothesis (H_4) is accepted and null hypothesis (H_{04}) is rejected.

This finding supported by Najjar S (2012) effect of foot and hand massage in post-cesarean section pain control: A randomized control trial, was performed in Mustafa Khomeini Hospital, Elam, Iran. The study was conducted among 80 pregnant women who had an elective cesarean section. The visual analog scale was used to determine the pain intensity before, immediately, and 90 minutes after conducting 5 minutes of foot and hand massage. The pain intensity was found to be reduced after intervention compared with the intensity before the intervention ($p < .001$).¹³

Objective 6: To evaluate the effectiveness of foot massage of post-test pain score among post cesarean mothers in foot massage group and control group.

The effectiveness of foot massage of post-test pain score among post cesarean mothers in foot massage group and control group shows that means post-test pain score in foot massage group was 1.75 ± 0.910 and mean post-test pain score in control group was 8.65 ± 1.089 with mean difference was 6.90. Comparison between mean post-test pain score in foot massage group and control group was done using unpaired "t" test with obtained t value ($t=21.73$) at $df=38$ was statistically highly significant at $p<0.05$ level. Findings revealed that foot massage was effective in reducing pain among post cesarean mothers as compared to control group. Hence research hypothesis (H_5) is accepted and null hypothesis (H_{05}) is rejected.

This finding also supported by Padmavathi P (2014) study to assess the effectiveness of foot reflexology on pain among post cesarean mothers in selected hospitals at Namakkal District. 30 post cesarean mothers fulfilling the inclusion criteria were selected by convenient sampling technique. Visual analogue scale was used to assess pre-test and post-test pain. In the experimental group mean score was 4.1 ($SD=0.24$) and in control group mean score was 4.1 ($SD=0.24$) with Paired "t" value of 6.42 and Unpaired "t" value 3.43. The study reveals that foot reflexology was effective in reducing post-operative pain among post cesarean mothers.¹⁶

Objective 7: To compare the effectiveness of hand massage and foot massage of post-test pain score among post cesarean mothers in hand massage group and foot massage group.

The effectiveness of hand massage and foot massage of post-test pain score among post cesarean mothers in hand massage group and foot massage group shows that mean post-test pain score in hand massage group was 4.75 ± 0.910 and mean post-test pain score in foot massage group was 1.75 ± 0.910 with mean difference was 3.0. Comparison between mean post-test pain score in hand massage group and foot massage group was done using unpaired "t" test with obtained t value ($t=10.42$) at $df=38$ was statistically highly significant at $p<0.05$ level. Hence research hypothesis (H_6) is accepted and null hypothesis (H_{06}) is rejected and is concluded that that foot massage was more effective in pain

reduction among post cesarean mothers as compared to hand massage group.

This finding supported by Babu Jayanthi, M Annie Annal, Renuka K (2019) true experimental study on Effectiveness of Hand Massage vs Foot Massage for Pain in Incision Site among Post-cesarean Mothers Admitted in Obstetrical Care Units at Mahatma Gandhi Medical College and Research Institute, Puducherry. This study reveals that foot massage was effective in reducing pain among post-cesarean mothers. The post-test level of pain in hand massage was 2.967 ± 1.129 and in foot massage was 1.967 ± 1.098 . While comparing the effectiveness of hand massage and foot massage, it was statistically significant at $p < 0.001$ level indicating that statistically foot massage was effective in reducing pain among post-cesarean mothers.⁴

6. Nursing Implication

Nursing Education:

- The student nurse should be updated with knowledge of complimentary alternative medicine for reducing post cesarean pain.
- Provide adequate clinical exposure for the students to give effective and safe nursing care on reduction of post cesarean pain.
- Encourage the students to demonstrate the nursing procedure in clinical setting.
- The student nurses should know about the importance of nursing interventions to the post cesarean mothers.
- Booklet can be developed about foot massage and hand massage techniques that can be practiced in the postnatal wards.
- Encourage the students for effective utilization of research based practice.

Nursing Administration:

- Conduct in service and continuing education programme for effective management of post cesarean pain through nursing interventions.
- Ensure and conduct workshop, conference, seminars on non-pharmacological methods to reduce post cesarean pain.
- Nurse administrator should arrange the demonstration program in the community and hospital regarding Non-Pharmacological methods.

Nursing Practice

The midwives have a vital role in providing safe and effective nursing care to enhance postnatal period.

- The hand massage and foot massage can be used effectively by the midwife for significant reduction in post cesarean pain among post caesarean mothers.
- The nurse should understand the importance of hand massage and foot massage and should know it as a non-pharmacological therapy in the field of obstetrics to reduce post cesarean pain.
- Develop skill in providing efficient nursing care for effective post cesarean pain management and promote comfort.

- All the post caesarean mothers can be taught about the advantage of hand massage and foot massage in the management of post cesarean pain.

Nursing Research:

- Nurses can promote more research on non-pharmacological post cesarean pain management.
- The findings of the study helps to expand scientific body of professional knowledge upon which further research can be conducted.
- Disseminate the findings of the research through conference, seminars and publishing in nursing journals.
- Promote effective utilization of research findings on reduction of post cesarean pain.

7. Limitation

- The study was limited to 60 samples.
- The study was restricted to only one setting.
- Randomization of the sample was not done.
- Sampling technique was convenient sampling technique.

8. Recommendation

- A similar study can be conducted by increasing the sample size.
- Study can be conducted in large setting.
- A similar study can be done using other alternative therapies on post caesarean pain.
- A comparative study can be done related to foot massage and hand massage among primi and multigravida women.
- A comparative study can be done related to foot massage and hand massage among rural and urban women.

9. Conclusion

The investigator had conducted the study to compare the effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers at Gauhati Medical College & Hospital, Guwahati, Assam. After conducting the study, comparing effectiveness of hand massage and foot massage on pain reduction among post cesarean mothers, foot massage group had reduced post cesarean pain level after giving foot massage as compared to hand massage group. The findings of the study are consistent with the literature and have strong support from some of the studies. So, foot massage can be given to post cesarean mothers by nurses in their day to day caring the post cesarean mothers in hospital setting.

References

- [1] Dutta D.C. (2009), "Textbook of Gynaecology". 5th edition. New central book agency (P) Ltd, India.
- [2] B Manjula. Effectiveness of hand and foot massage on pain among post caesarean mothers at selected hospitals, Salem, degree of master of science in nursing to The Tamilnadu Dr. M.G.R. Medical University. Chennai; 2014. Available from:

[http://repository-](http://repository-tnmgrmu.ac.in/10145/1/300321714manjula.pdf)

[tnmgrmu.ac.in/10145/1/300321714manjula.pdf](http://repository-tnmgrmu.ac.in/10145/1/300321714manjula.pdf)

- [3] Wong (2010). 10 most popular types of massage therapy, which one massage right for you; 2011.
- [4] BabuJayanthi, M Annie Annal, K Renuka. Effectiveness of Hand Massage vs Foot Massage for pain in incision site among post-cesarean mothers admitted in obstetrical care units at Mahatma Gandhi Medical College and Research Institute, Puducherry. Pondicherry Journal of Nursing (2019): 10.5005/jp-journals-10084-12124. Available from: <https://pjn.sbvjournals.com/doi/PJN/pdf/10.5005/jp-journals-10084-12124>
- [5] SunilaThottingal. A study to assess the effect of foot reflexology on pain and discomfort of mothers after cesarean section in selected hospitals, Bangalore, degree of master science of nursing, Rajiv Gandhi university of health sciences, Karnataka; 2013
- [6] C-section birth on rise in India, Times of India. Available from: http://articles.timesofindia.indiatimes.com/2010-01-14/india/28148588_1_c-section-surgical-delivery-private-hospitals.
- [7] Manfred stommel and Celia E.Wills (2004). "Clinical Research". (1st Edition), USA; Lippincott Williams and Wilkinns; 243-250.
- [8] Cesarean section. Gale Encyclopedia of Medicine; 23 August 2018. Available from: <http://medical-dictionary.thefreedictionary.Com/cesarean+section>
- [9] Bhasin SK, OP Rajoura et.al. (2006). A high prevalence of caesarean section rate in east Delhi. Available from: <http://www.indmedica.com/journals.php?journalid=7&issueid=101&articleid=1386&action=article>
- [10] Manfred stommel and Celia E.Wills, (2004). "Clinical Research". (1st Edition), USA; Lippincott Williams and Wilkinns; 243-250.
- [11] Polit DF, Hungler BP. Nursing research: principles and methods. 5thed. New Delhi: J.B. Lippincott company; 1999: 139, 650
- [12] Myles (2007). Text Book for Midwives. (14th edition). Churchill living stone publication.
- [13] Abbspoor Z, Akbri M, Najar S. Effect of foot and hand massage in post cesarean section pain control: a randomized control trial. Pain ManagNurs. 2014 Mar; 15(1): 132-136. Doi: 10.1016/j.pmn.2012.7.008. Epub 2013 Jan 24. PMID: 23352729. Available from: <https://pubmed.ncbi.nlm.nih.gov/23352729/>
- [14] Niven R et al. Effect of Foot Reflexology on Post-Cesarean Pain. IOSR Journal of Nursing and Health Science (IOSR-JNHS) e- ISSN: 2320-1959.p- ISSN: 2320-1940 Volume 7, Issue 4 Ver. VI (Jul.-Aug. 2018), PP 01-19 www.iosrjournals.org DOI: 10.9790/1959-0704060119. Available from: www.iosrjournals.org
- [15] Ashabiya JM et al. Effectiveness of foot on post cesarean pain among mother's who had cesarean section. International Journal of Midwifery and Nursing Practice 2019; 2(1): 24-27. Available from: <https://www.nursingpractice.net/article/view/21/1-1-22>
- [16] Padmavathi P. A study to assess the effectiveness of foot reflexology on pain among post cesarean mothers in selected hospitals at Namakkal District. Int. J. Adv.

Nursing Management 2(2): April-June; 2014.

Available

from:<https://ijanm.com/AbstractView.aspx?PID=2014-2-2-3>

Author Profile



Pompi Baishya, M.Sc. Nursing; E-mail: pombaishya42@gmail.com



Syed Ridhwaanah, Assistant Professor; E-mail: ridhu.nursing@gmail.com