

“EFFECTIVENESS OF HAND AND FOOT MASSAGE ON PAIN REDUCTION AMONG POST-CAESAREAN MOTHERS AT SELECTED HOSPITALS OF HUBBALLI, DHARWAD, KARNATAKA.”

¹Ms. Shweta Shindogi. M.Sc (N), ²Mrs. Asha H. Bhatakhande. M.Sc (N), ³Mrs. Sharon Rose M.Sc. (N).

¹Lecturer, Dept of Obstetrics and Gynecological Nursing, ²Associate Professor and HOD of Obstetrics and Gynecological Nursing, Lecturer, ³Dept of Medical Surgical Nursing,

¹Dept of Obstetrics and Gynecological Nursing

¹KLES' Institute of Nursing Sciences, Hubballi-31, Karnataka, India

ABSTRACT

Title: A study was conducted to assess the effectiveness hand and foot massage on pain reduction among 30 post-caesarean mothers at selected hospitals of Hubballi, Dharwad”. **Objectives:** To assess the level of pain among post-caesarean mothers in experimental group before hand and foot massage. To assess the level of pain among post-caesarean mothers in control group. To evaluate the effectiveness of hand and foot massage on level of pain among experimental group in terms of pain reduction. To find out an association between pre-test pain scores of experimental group with their selected socio-demographical variables. To find out an association between pre-test pain scores of control group with their selected socio-demographical variables. **Research design:** A quasi-experimental; Pre-test post-test control group design was used to select 30 post-caesarean mothers, who were divided equally into two groups (experimental group & control group). **Tool:** The demographic Proforma were collected using structured interview schedule & Modified McGill Pain Questionnaire to measure the level of pain. Data obtained in these areas were analysed using descriptive and inferential statistics. **Results:** The results showed that, There was statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in experimental group at 0.05 level of significance. There was statistical difference in the post-test score regarding pain among post-caesarean mothers in experimental group and control group at 0.05 level of significance. There was no significant association between pre-test pain score of both experimental and control group with their and selected demographic variables. This indicated that the post-test pain score of control group was greater than the experimental group who were exposed to Hand and Foot Massage. **Conclusion:** Therefore, the study concluded that hand and foot massage was effective, in-expensive and easily applied strategy for reduction of pain among post-caesarean mothers.

Key Words: Complementary therapies, Hand and foot massage, post-caesarean mothers, experimental and control group, quasi-experimental study.

INTRODUCTION

Motherhood is the greatest role of women. The most ambitious dream of a woman in her life is giving birth. Childbirth is one of the most marvelous and memorable segment in a woman's life. Childbirth is a physiological process, but complications can occur during pregnancy until the birth. One type of labor that often occurs is caesarean section in order to prevent complication. In the last 20 years, caesarean section has become a trend for various reasons, namely the existence of obstacles experienced by the fetus and mother, and also sometimes because of the mothers' request who do not want to give birth normally for reasons of fear¹.

Despite the global approach towards promoting physiological birth, caesarean birth is still prevalent around the world. According to WHO and UNICEF databases- based on data from 169 countries, Globally, caesarean section use has increased by 3.7% each year between 2000-2015-rising from 12% of live births (16 million of 131.9 million) in 2000, to 21% of live births (29.7 million of 140.6 million) in 2015².

National Family Health Survey-4 in 2017 shows- The rate of caesarean section deliveries in India has increased nearly sixfold, from 3% in 1992 to 10% in 2005, and 17% in 2016. Many Indian states, especially the southern states, have a higher proportion of caesarean section deliveries than the national average³. The number of caesarean section has more than doubled in the past decade, going up from 8.5% of the total births in 2005-06 to 17.2% in 2015-16. While the WHO recommends the rate of caesarean delivery to be 10-15%, the number was 17.2% for India during the period from Jan 2015 to Dec 2016. This is higher than the rate seen in rich countries such as the Netherlands and Finland. In India the total number of caesarean section in Rural was 12.9% and in Urban it was 28.3%. In regard to the state, Karnataka the total number of caesarean section in Rural was 19.9% and in Urban it is 29.2%⁴.

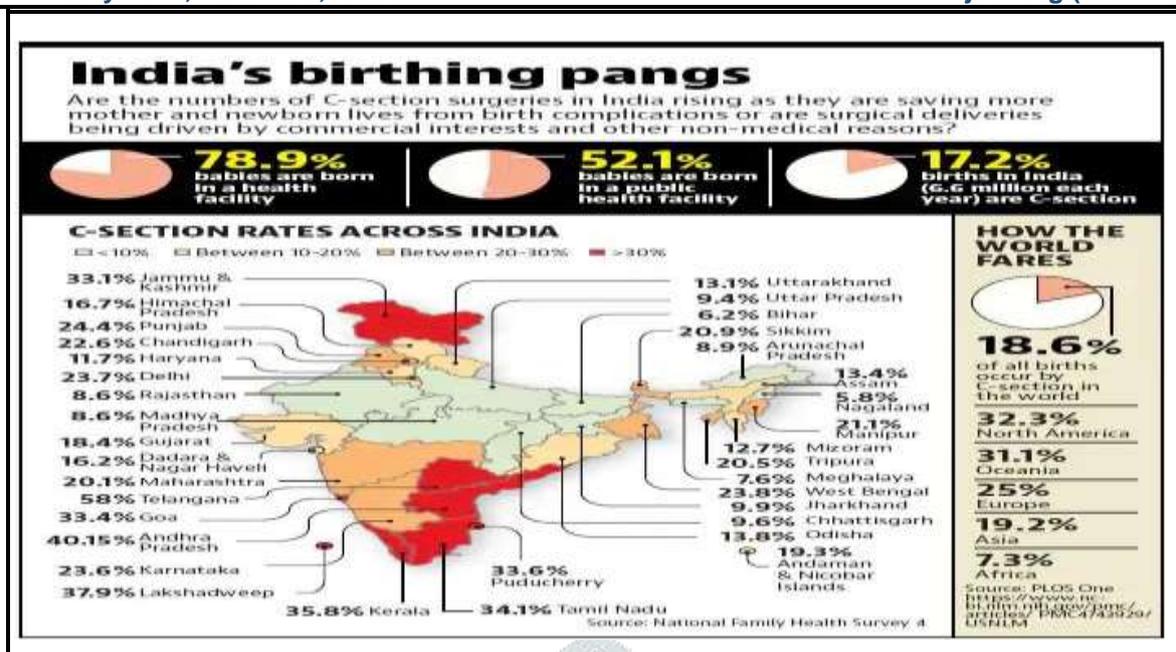


Figure 1: Source; National Family Health Survey-4 (2017)

Caesarean section is the 2nd commonest surgery performed on women in India after tubectomy. Post-operative pain interferes with the daily activities of the mother and her newly adopted maternal role affecting breastfeeding and new born care⁵.

One of the effects of post caesarean section is the pain in the spine, pain in the stitches, pain in the incision and also nausea and vomiting due to the effects of anesthesia, sense of confusion and fear in the daily activity and the conditions experienced by the client and also needs to adapt to the condition of the post-surgery action. This pain if not noticed, can slow down the healing process¹. Additionally, pain can impair the mothers' ability to optimally care and breast-feed their infant in the postpartum period⁶.

The results of studies have shown that 79% of patients suffer from severe and moderate pain within 48 hours after operation¹. Post-caesarean pain has two mechanisms somatic and visceral. Somatic pain coming up from neural receptors within the abdominal wound has both coriaceous and deep compounds. Also visceral uterine neural stimuli are conveying pain. Both mechanisms ascend pain to the spinal cord passing through the T10-L1 spinal fibers. These pains are quite unlike; somatic pain is confined, whereas the visceral pain is recognized as diffuse one⁷.

Therefore it is crucial, that the method used for post-cesarean pain management should be safe, efficient and does not interfere with the mother's ability to mobilize and care for her newborn. Thus, managing this distinctive kind of pain with harmless, easy and effective pain-relieving method through empirical evidence is a requisite⁷.

Pharmacological pain relieves methods used in post-cesarean are a great constrain for obstetric nurses. Since the expand use of medications cause numerous unfavorable effects including; nausea and vomiting as well as a delay in hospital discharge. Moreover, narcotics which can be used as a painkiller can be secreted in breast milk and cause sedation to the neonate as well. The non-pharmacological pain relief method is a good option for the obstetric nurse to manage post-caesarean pain⁷. Therefore the use of complementary and alternative medicine (CAM) has become popular with consumers worldwide⁸.

Massage is one of the manual healing methods which come under CAM and one among that is hand and foot massage. Massage is a systematic and rhythmic form of touch, using certain manipulations of the soft tissues of the body in order to promote patients' comfort, well-being and pain relief. Foot and hand massage stimulates the nerve fibers to produce painrelieving endorphins. Since the highest concentration of pain receptors are in the hands and feet (each of the extremities has more than 7,000 nerve endings), foot and hand massage and neurons' stimulation may be a good technique for assuaging pain and anxiety after cesarean section⁶. Massage is becoming a cost effective, non invasive approach to 'meaningful pain'.

A study results shows that the mean pre-test pain score among experimental group, was 6.50 and the mean post-test pain score was 3.60 with $t=6.51$ Significant at $P=0.001$ level. And the mean pre-test pain score among control group was 6.13 and the mean post-test pain score was 5.53 with $t=1.26$ which is Not significant at $P=0.21$ level, indicated that the reduction in pain intensity was significant in intervention groups, as compared to control group⁹.

Literatures reveal that introducing complementary and alternative therapies such as hand and foot massage is an effective method to relieve pain among post-cesarean mothers. It is observed that the trials on hand and foot massage in Indian setting are very much limited, hence foot and hand massage appears to be an effective, inexpensive, low-risk, flexible, and easily applied strategy for post-cesarean pain management and this study be considered important in providing empirical evidence. Hence the above mentioned factors motivated the investigator to undertake the study.

PROBLEM STATEMENT

“Effectiveness of hand and foot massage on pain reduction among post-caesarean mothers at selected hospitals of Hubballi, Dharwad”

OBJECTIVES OF THE STUDY

1. To assess the level of pain among post-caesarean mothers in experimental group before hand and foot massage.
2. To assess the level of pain among post-caesarean mothers in control group.
3. To evaluate the effectiveness of hand and foot massage on level of pain among experimental group in terms of pain reduction.
4. To find out an association between pre-test pain scores of experimental group with their selected socio-demographical variables.
5. To find out an association between pre-test pain scores of control group with their selected socio-demographical variables

HYPOTHESES

- H1:** There will be a statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in experimental group at 0.05 level of significance.
- H2:** There will be a statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in control group at 0.05 level of significance.
- H3:** There will be a statistical difference in post-test score regarding pain reduction among post-caesarean mothers in experimental and control group at 0.05 level of significance.
- H4:** There will be a statistical association between pre-test pain scores of post-caesarean mothers of experimental group with their selected demographic variables at 0.05 level of significance.
- H5:** There will be a statistical association between pre-test pain scores of post-caesarean mothers of control group with their selected demographic variables at 0.05 level of significance.

CONCEPTUAL FRAMEWORK

A conceptual framework represents the researcher's synthesis of literature on how to explain a phenomenon. It maps out the actions required in the course of the study and researcher's previous knowledge of other researchers' point of view and observations on the subject of research¹⁰. It is a device that helps to stimulate research and the extension of knowledge by providing both direction and impetus⁹

The present study was aimed at determining the effectiveness of hand and foot massage on pain among post-caesarean mothers. The conceptual frame work of this study was derived from modified **Ronald Melzack and Patrick Wall's Gate Control Theory of Pain**.

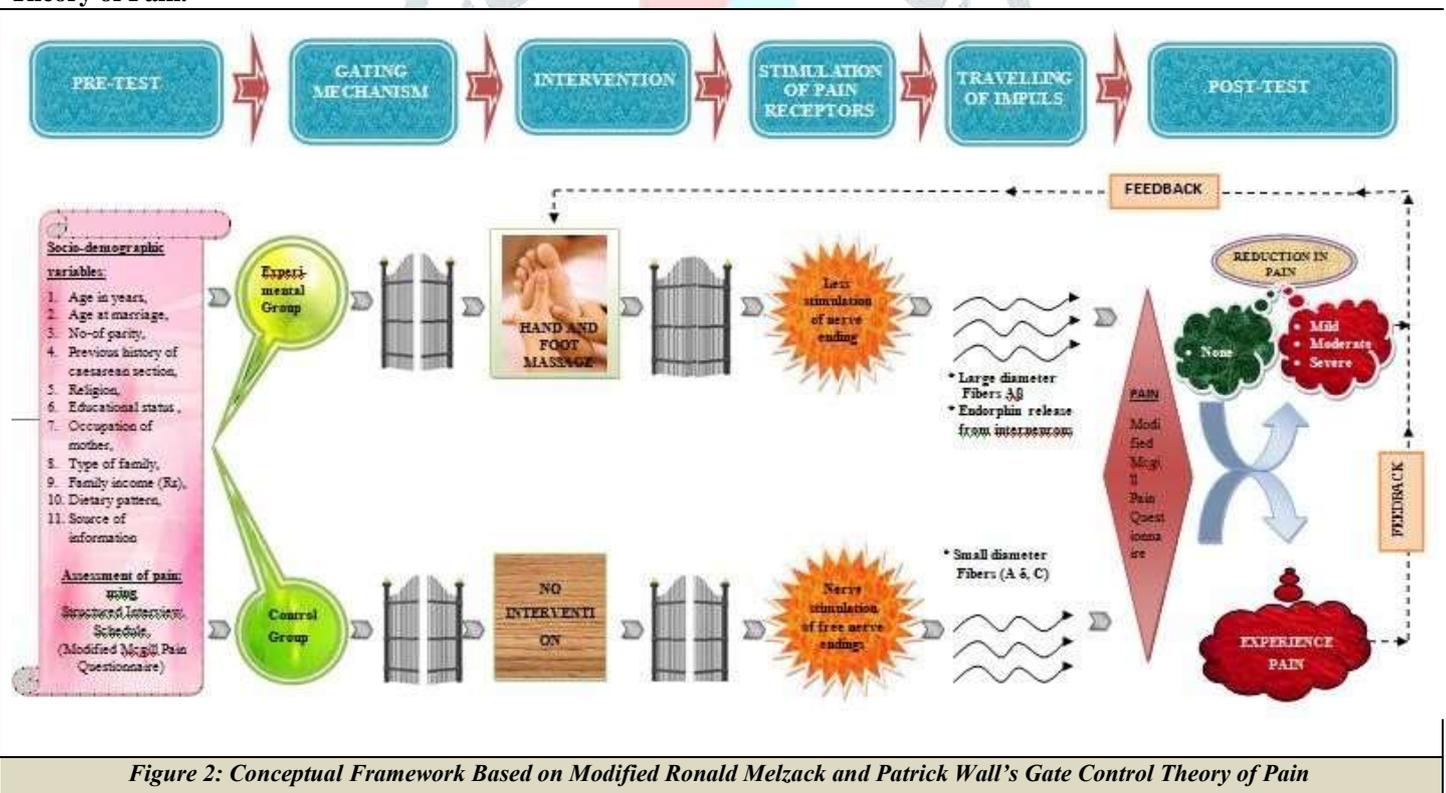


Figure 2: Conceptual Framework Based on Modified Ronald Melzack and Patrick Wall's Gate Control Theory of Pain

MATERIALS AND METHODS

- **Research Approach:** An evaluative approach was adopted.
- **Research design:** Quasi-experimental; Pre-test post-test control group design was selected for this study.
- **Research Setting:** Our Lady of Louders Charitable Hospital, Dharwad, Nalwad Multispeciality Hospital & Research Center, Hubballi
- **Sample size:** The sample size consists of 30 post-caesarean mothers, 15 were assigned to experimental group from Our Lady of Louders Charitable Hospital, Dharwad and 15 were assigned to control group from Nalwad Multispeciality Hospital & Research Center, Hubballi

- **Sampling Technique:** Non probability: convenient sampling technique was used to select subjects according to the sample selection criteria.
- **Criteria for sample selection:**
The criteria for selection of samples in this study involves:-
Inclusive criteria: Post-caesarean mothers who;
 - ✦ are in 1st, 2nd and 3rd post operative day ✦ are willing to participate in the study.
 - ✦ can understand kannada and english.**Exclusion criteria**
 - ✦ Post-caesarean mothers who have any associated post- caesarean complications
Like: Infection, Surgical injury to bladder or intestines, Amniotic fluid embolism (Amniotic fluid or fetal material enters the maternal bloodstream), Inflammation of the uterus, Bleeding.
- **Tool:** structured interview schedule consists of questionnaire related to socio demographical variables and Modified McGill Pain Questionnaire to assess intensity of pain.
- **Procedure for data collection:** After obtaining verbal consent from the post-caesarean mothers, data was collected using structured interview schedule (Modified McGill Pain Questionnaire) every time for experimental and control group. The experimental group received Hand and Foot Massage for 5 min on each extremities, adding to a total of 20 minutes for, twice a day for first 3 days (morning and evening after 2 hours of administration of pain medication) using gingelly oil, and the pain was assessed after 60 min of intervention. No intervention was given to control group. Post test was done using the same tool for experimental group and control group. The data was tabulated and analyzed manually.

RESULTS

SECTION I: DISTRIBUTION OF SAMPLE CHARACTERISTICS ACCORDING TO SOCIO-DEMOGRAPHIC VARIABLES IN EXPERIMENTAL AND CONTROL GROUP.

Table No 1: Frequency and percentage distribution of subjects according to socio-demographic variables. $n_1+n_2=30$

Sl. No	Demographic Variable	Experimental group (n ₁)		Control group (n ₂)	
		Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
1	Age in Years				
	a) 23-28	08	53.33	05	33.33
	b) 28-33	05	13.33	07	46.66
	c) 33-38	02		03	20
2	Age at marriage				
	a) 20-25	08	53.33	07	46.66
	b) 25-30	06	40	08	53.33
	c) 30-35	01	6.66	00	00
3	Number of parity				
a)	Primi para	08	53.33	08	53.33
b)	Multi para	07	46.66	07	46.66
4	Previous history of caesarean section				
a)	Yes	07	46.66	06	40
b)	No	08	53.33	09	60
5	Religion				
a)	Hindu	08	53.33	09	60
b)	Christian	02	13.33	03	20
c)	Muslim	03	13.33	02	13.33
d)	Others	02		01	06.66
6	Education status of mother				
a)	Non-Formal Education	01	06.66	00	00
b)	Primary Education	02	13.33	03	20
c)	Secondary Education	04	26.66	02	13.33
d)	Pre-university education	05	33.33	05	33.33
e)	Graduation and above	03	20	05	33.33
7	Occupation of mother				
a)	Employed	06	40	09	60
b)	Unemployed	09	60	06	40

8 Type of family

a) Nuclear	05	33.33	08	53.55
b) Joint	08	53.33	05	33.33
c) Extended	02	13.33	02	13.33

9 Family income (in Rs)

a) Less than 10,000	00	00	01	06.66
b) 10,000-20,000	04	26.66	03	20
c) 20,000-30,000	06	40	06	40
d) Above 30,000	05	33.33	05	33.33

10 Dietary pattern

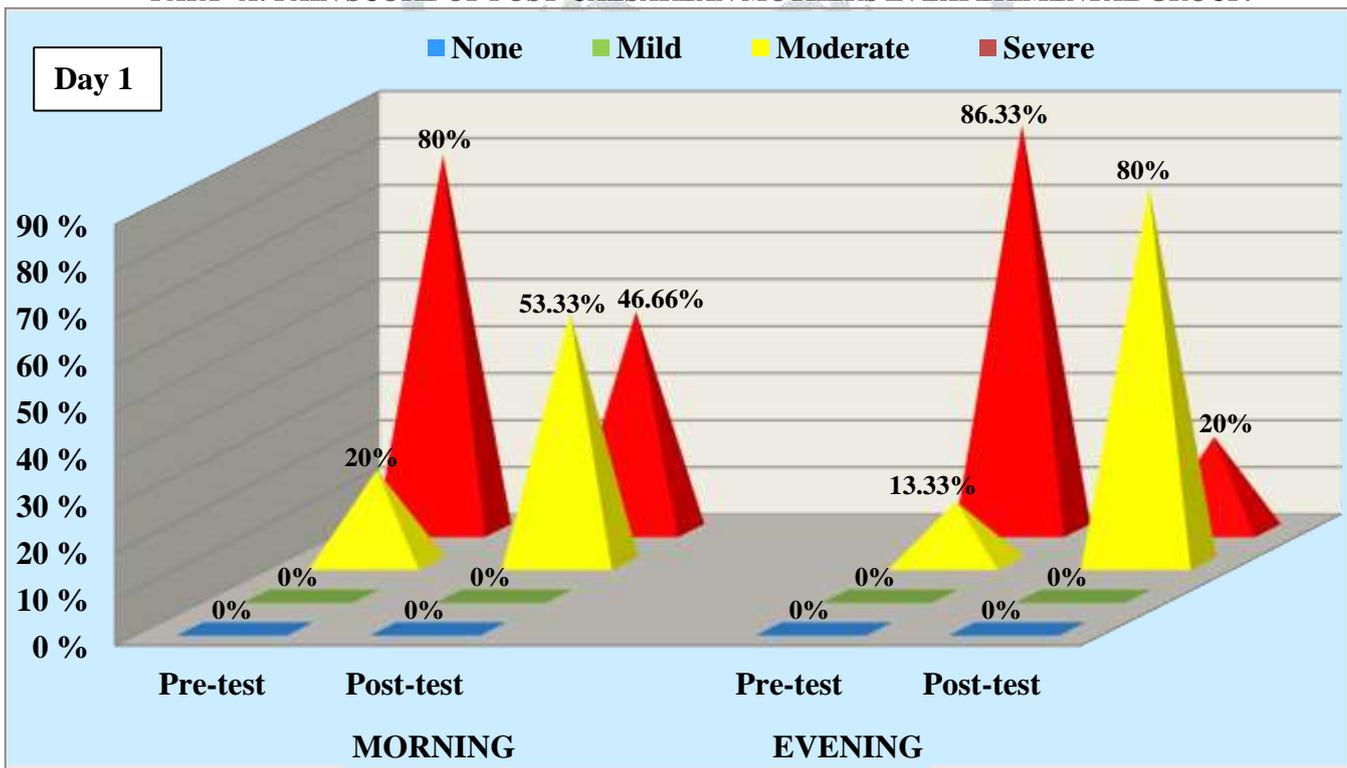
a) Vegetarian	05	33.33	07	46.66
b) Mixed	10	66.66	08	53.33

11 Source of information

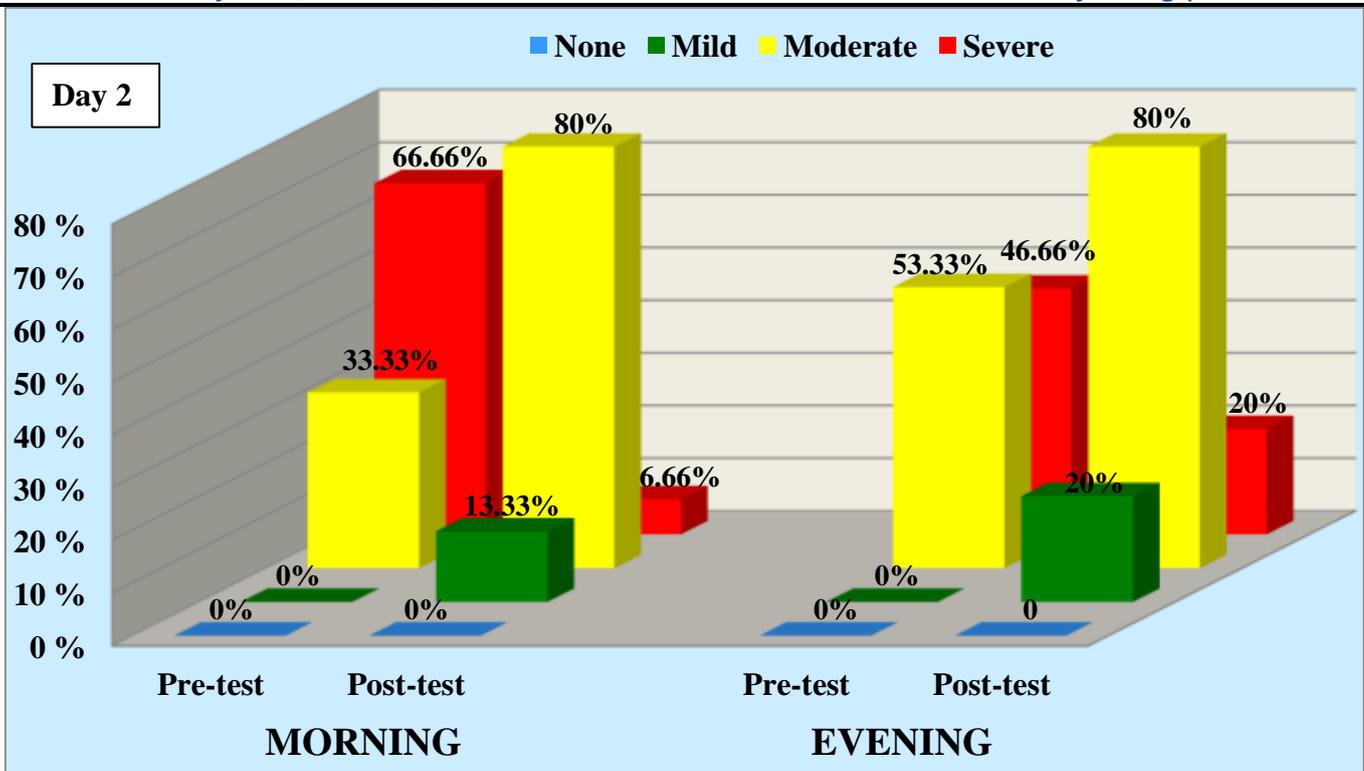
a) Print media	02	13.33	01	06.66
b) Electronic media	06	40	07	46.66
c) Friends/relatives	06	40	05	33.33
d) Health professionals			01	06.66
			02	13.33

SECTION-II: ANALYSIS AND INTERPRETATION OF PAIN SCORES OF SUBJECTS WHO HAVE PARTICIPATED IN THE STUDY.

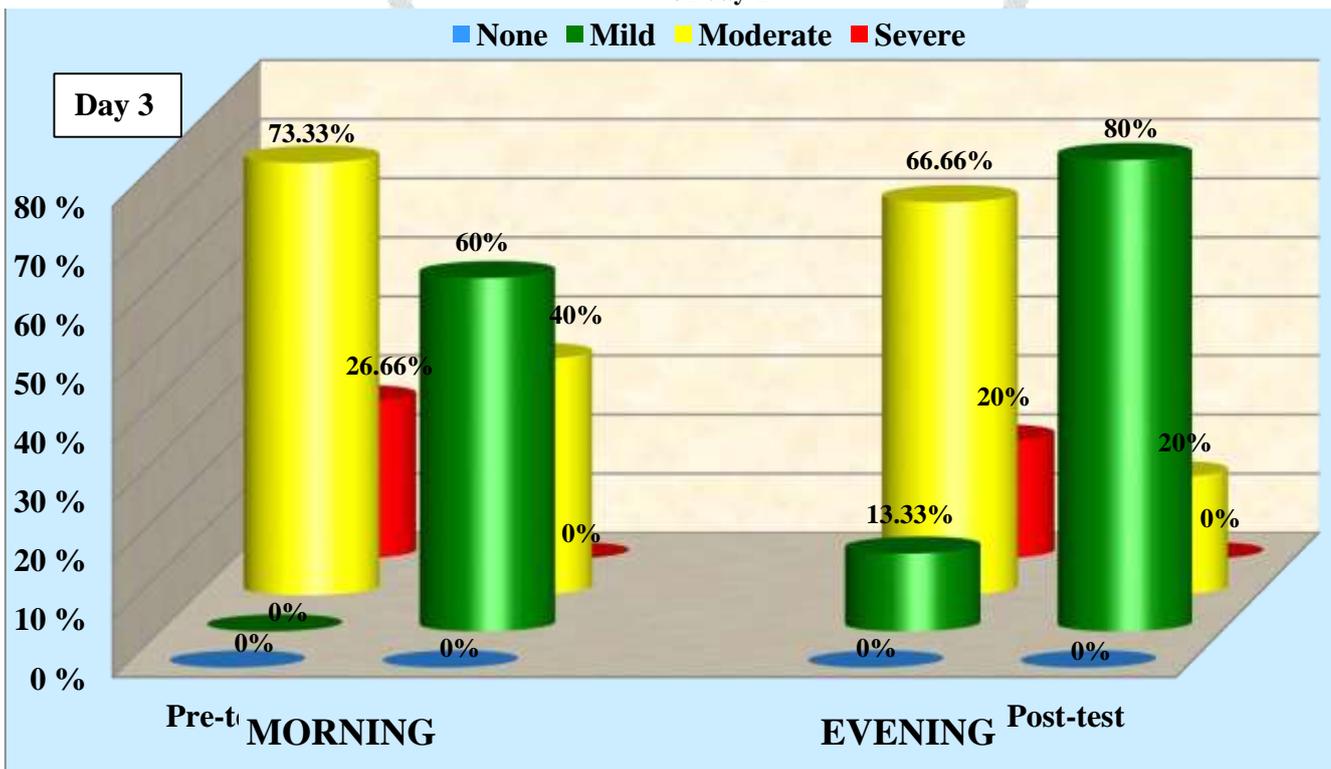
PART -A: PAIN SCORE OF POST-CAESAREAN MOTHERS IN EXPERIMENTAL GROUP.



Graph 1: The pyramid graph represents percentage distribution of subjects according to their intensity of pain on day-1

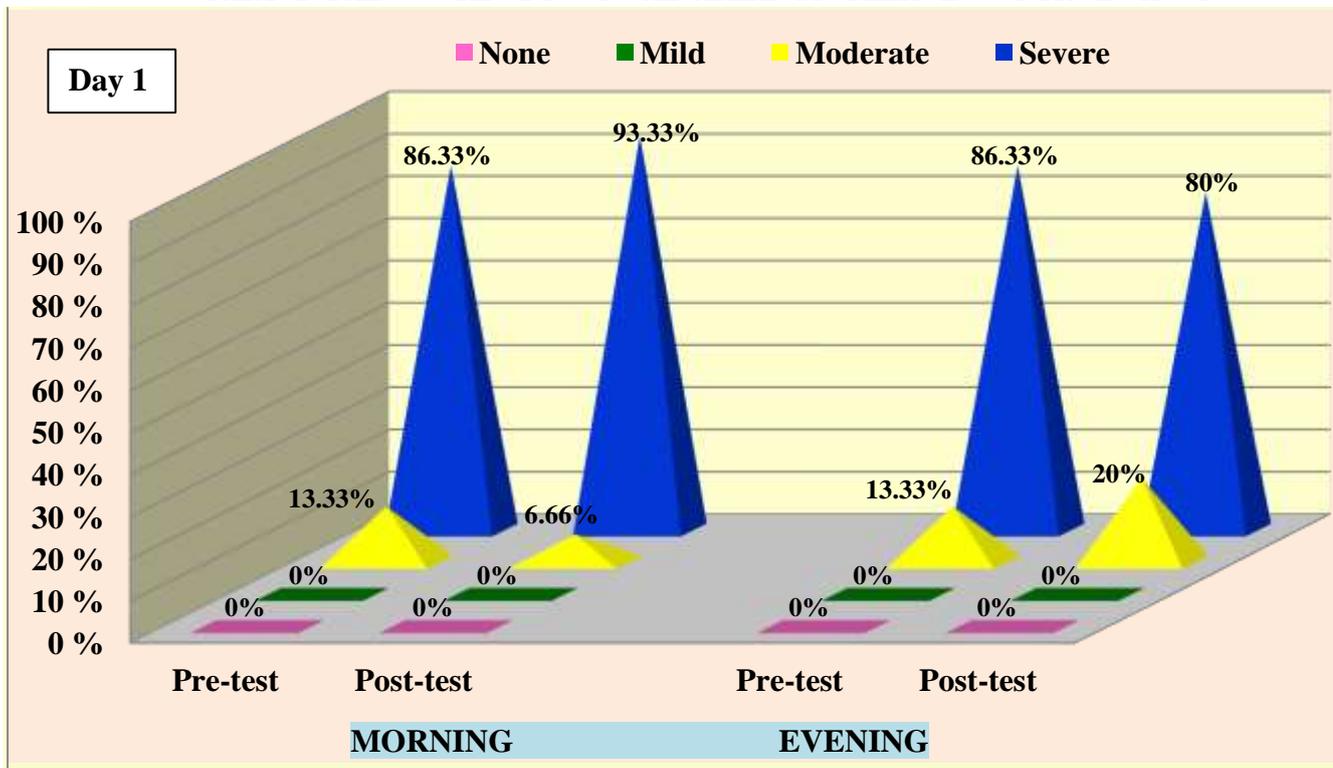


Graph 2: The columnar graph represents percentage distribution of subjects according to their intensity of pain on day-2

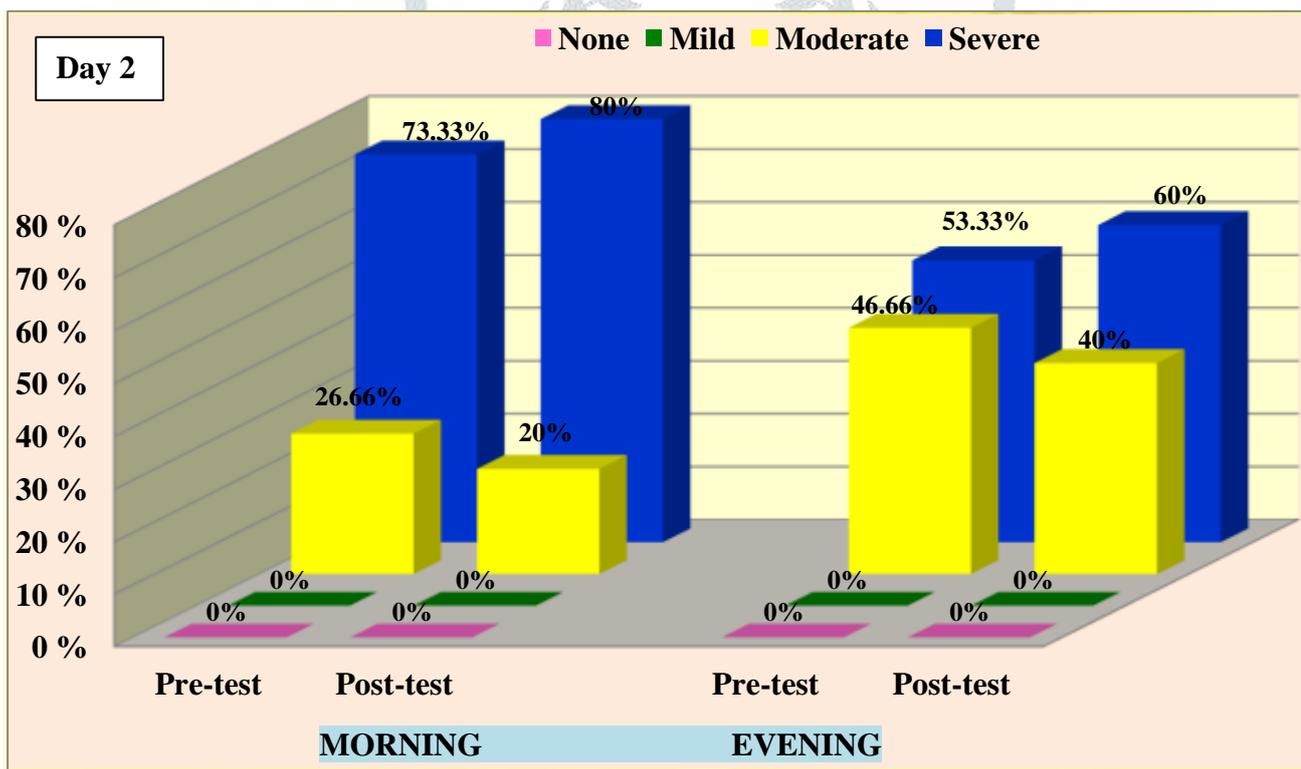


Graph 3: The cylindrical graph represents percentage distribution of subjects according to their intensity of pain on day-3

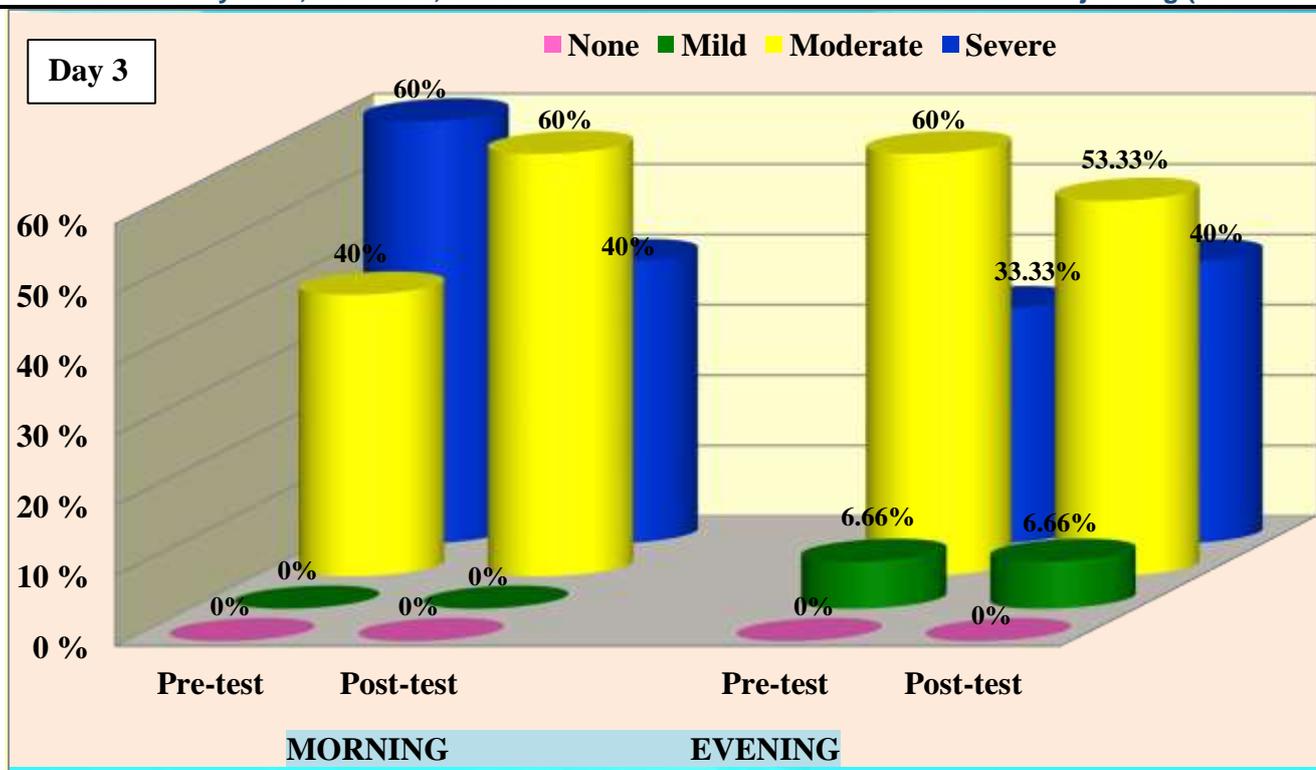
PART- B: PAIN SCORE OF POST-CAESAREAN MOTHERS IN CONTROL GROUP.



Graph 4: The pyramid graph represents percentage distribution of subjects according to their intensity of pain on day-1



Graph 5: The columnar graph represents percentage distribution of subjects according to their intensity of pain on day-2



Graph 6: The cylindrical graph represents percentage distribution of subjects according to their intensity of pain on day-3

SECTION III : TESTING HYPOTHESES.

H₁: There will be a statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in experimental group at 0.05 level of significance.

The results were: **Day 1**, Morning ($t_{cal}=11.60$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=11.16$) was greater than the tabulated value ($t_{tab}=2.145$). **Day 2**, Morning ($t_{cal}=11.14$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=15.30$) was greater than the tabulated value ($t_{tab}=2.145$). **Day 3**, Morning ($t_{cal}=13.16$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=12.47$) was greater than the tabulated value ($t_{tab}=2.145$). This indicates that the post-test pain score was less than pre-test pain score. Hence, **H₁ was accepted**. There was statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in experimental group at 0.05 level of significance.

H₂: There will be a statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in control group at 0.05 level of significance.

The results were: **Day 1**, Morning ($t_{cal}=0.75$) was lesser than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=1.94$) was lesser than the tabulated value ($t_{tab}=2.145$). **Day 2**, Morning ($t_{cal}=0.93$) was lesser than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=1.66$) was lesser than the tabulated value ($t_{tab}=2.145$). **Day 3**, Morning ($t_{cal}=0.86$) was lesser than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=2.06$) was lesser than the tabulated value ($t_{tab}=2.145$). There was no statistical difference in post-test and pre-test score regarding pain reduction among post-caesarean mothers in control group at 0.05 level of significance. Hence, **H₂ was rejected**.

H₃: There will be a statistical difference in post-test score regarding pain among post-Caesarean mothers in experimental and control group at 0.05 level of significance.

Table No 2: Comparison of post-test score regarding pain among post-caesarean mothers and unpaired 't' values of pain score of subjects of experimental and control group.

Events	Experimental group		Control group		Mean difference (\bar{d})	Standard error of difference (SEd)	Unpaired 't' values	
	Mean	SD	Mean	SD			Calculated	Tabulated
n₁+n₂=30								
Day 1								
Morning	71.46	11.69	99.33	6.70	27.86	3.47	8.00	2.043
Evening	67.4	8.66	94.33	7.56	26.93	2.97	9.06	2.043
Day 2								
Morning	54.86	14.45	91.66	8.98	36.8	4.39	8.37	2.043
Evening	49.46	10.86	87.73	8.54	38.26	3.56	10.72	2.043
Day 3								
Morning	40	11.08	85	8.92	45	3.67	12.24	2.043
Evening	28.8	8.03	79.66	13.05	50.86	3.95	12.84	2.043

Significant at $p \leq 0.05$ level of significance

Table No 2: reveals that the calculated unpaired 't' value for experimental and control group **Day 1**, Morning ($t_{cal}=8.00$) was greater than the tabulated value ($t_{tab}=2.043$). Evening ($t_{cal}=9.06$) was greater than the tabulated value ($t_{tab}=2.043$).

Day 2. Morning ($t_{cal}=8.37$) was greater than the tabulated value ($t_{tab}=2.043$).

Evening ($t_{cal}=10.72$) was greater than the tabulated value ($t_{tab}=2.043$).

Day 3. Morning ($t_{cal}=12.24$) was greater than the tabulated value ($t_{tab}=2.043$).

Evening ($t_{cal}=12.84$) was greater than the tabulated value ($t_{tab}=2.043$).

Hence, **H₃ was accepted.** There was statistical difference in post-test score regarding pain among post-caesarean mothers in experimental group and control group at 0.05 level of significance. Thus it becomes evident that Hand and Foot Massage was effective in reducing pain among post-caesarean mothers in experimental group. Hence H₃ is retained at $p \leq 0.05$ level.

H₄: There will be a statistical association between pre-test pain scores of post-caesarean mothers of experimental group with their selected demographic variables at 0.05 level of significance.

The computed chi square test revealed that There was no statistical association between pre-test pain scores of post-caesarean mothers of experimental group with their selected demographic variables at 0.05 level of significance. Hence, **H₄ was rejected.**

H₅: There will be a statistical association between pre-test pain scores of post-caesarean mothers of control group with their selected demographic variables at 0.05 level of significance.

The computed chi square test revealed that There was no statistical association between pre-test pain scores of post-caesarean mothers of control group with their selected demographic variables at 0.05 level of significance. Hence, **H₅ was rejected.**

DISCUSSION

The overall post-test and pre-test score regarding pain reduction among post-caesarean mothers in experimental group. The calculated paired 't' value for **Day 1**, Morning ($t_{cal}=11.60$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=11.16$) was greater than the tabulated value ($t_{tab}=2.145$). **Day 2.** Morning ($t_{cal}=11.14$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=15.30$) was greater than the tabulated value ($t_{tab}=2.145$). **Day 3.** Morning ($t_{cal}=13.16$) was greater than the tabulated value ($t_{tab}=2.145$). Evening ($t_{cal}=12.47$) was greater than the tabulated value ($t_{tab}=2.145$). These findings were supported through a study conducted by Ms. Sheela Mary who observed that there was reduction in the pain of post-caesarean mothers after hand and foot massage. The calculated paired 't' value for **Day 1**, Morning ($t_{cal}=21.39$) was greater than the tabulated value ($t_{tab}=2.043$). Evening ($t_{cal}=30.56$) was greater than the tabulated value ($t_{tab}=2.043$). **Day 2**, Morning ($t_{cal}=14.84$) was greater than the tabulated value ($t_{tab}=2.043$). Evening ($t_{cal}=17.69$) was greater than the tabulated value ($t_{tab}=2.043$). **Day 3**, Morning ($t_{cal}=9.95$) was greater than the tabulated value ($t_{tab}=2.043$). Evening ($t_{cal}=12.04$) was greater than the tabulated value ($t_{tab}=2.043$)⁸. This indicates that the post-test pain score was less than pre-test pain score which is statistically significant at $p < 0.05$ level.

CONCLUSION

Cesarean section is a major surgery in obstetrics and gynecology, and it is currently among the most common surgical procedures. Thus, the management of post-caesarean complications is of particular importance. However, post-caesarean section pain remains a major challenge for health care providers. Hence, the study concluded that the hand and foot massage was effective, inexpensive, low-risk, flexible, and easily applied strategy for reduction of pain among post-caesarean mothers.

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