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Effectiveness of Hand Massage on Reduction of Post Caesarean Pain

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Abstract: ***Background and Aim****: The prevalence of caesarean section has increased substantially in Maharashtra from 2010-2017 and still is continuously increasing. Moreover, it is obligate to manage the post caesarean pain non-pharmacologically including hand massage. However, there is paucity of evidence for effectiveness of hand massage on post-caesarean pain in mothers of Kolhapur. Hence, this study aimed to evaluate the effectiveness of hand massage on post-caesarean pain in mothers of Kolhapur.* ***Materials and methods****: Quasi-experimental study was performed on 60 who underwent L.S.C.S and were on their 1st post-operative day in the selected hospitals at Kolhapur. The effectiveness of a hand massage was evaluated through a modified numerical rating pain scale using pre-test - post-test design. Reduction in pain score was determined through the qualitative and evaluative approach. Explanatory data analysis, paired t test and unpaired t test were used to analyze the data.* ***Results****: Significant reduction in pain was evident in the experimental group concerning pre and post-test pain scores (Mean difference ± standard deviation = 3.83±0.11;* T_{cal}*= 32.42;* T_{tab}*= 2.04; P<0.05). Moreover, when the post-test pain score was compared between experimental and control group, a significant difference in the post-test pain score was observed reflecting the effectiveness of hand massage in reducing LSCS pain (Mean difference ± standard deviation = 4.37±0.09;* T_{cal}*= 21.56;* T_{tab}*= 1.68; P<0.05).* ***Conclusion****: The hand massage was effective in reducing the post-caesarean pain. Hence, it can be used as a non-pharmacological therapy to reduce pain among caesarean mothers in Kolhapur.*

Keywords: Caesarean section, Massage, Pain management, Post-operative pain, Pregnancy

1. Introduction

Prevalence of caesarean section have risen from 7% (1990) to 21% (2021) worldwide. However, WHO has estimated that if current trends persist, Eastern Asia (63%), Caribbean and Latin America (54 %), Northern Africa (48 %), Western Asia (50 %), Southern Europe (47%), and New Zealand and Australia (45%) are projected to have the highest rates by 2030. [1] A recent survey has illustrated that prevalence of caesarean section has increased substantially in Maharashtra from 2010-2017 and still is continuously increasing.[2] Inadequately managed postoperative pain can considerably contribute to morbidity, delaying patients' recovery and capacity to return to normal functioning activities.[3] Moreover, previous studies have illustrated that inadequately managed post caesarean pain, is highly related to chronic pain and post-traumatic stress syndrome. [3]

Despite technical improvements in health care, conventional analgesic methods for postoperative pain control remain insufficient for pain management post caesarean section, as it has potential to cause maternal hypotension, decreasing placental blood flow, resulting in foetal acidosis and hypoxia. Therefore, this necessitates the use of additional interventions or therapies. [4, 5] Non-pharmacological approaches, including therapeutic touch, massage, counter-pressure, rocking, walking, applying cold and heat, transcutaneous electrical nerve stimulation (TENS), breathing techniques, showers, music therapy, reflexology, childbirth education, imagining are lately followed as they have no side effects. [4]

Massage is to help with therapeutic processes by altering the neurological system, locomotor system, and cardiovascular system. Massage has a range of benefits, including deep breathing, general relaxation, and sleepiness. The moderately unspecialized nerve cell terminals that trigger the sensation of pain are nociceptors; they are sensory receptors that convey pain signals and are commonly deposited on the surface of deeper tissues and underneath the skin, particularly in the feet and hands. [6-8]

Since post-caesarean pain can be influenced by several factors including age, surgical technique, complications during the procedure, the support of family and healthcare personnel, weight and gender of baby, social and cultural issues and previous experience of the procedure and there is a lack of evidence for effectiveness of hand massage on post-caesarean pain in mothers of Kolhapur. Hence, the study aimed to evaluate the effectiveness of hand massage on post-caesarean pain in mothers of Kolhapur.

2. Materials and Methods

A Quasi-experimental study was performed between January and September 2020 at selected hospitals at Kolhapur. A total of 60 mothers who underwent L.S.C.S and were in their 1st post-operative day and willing to participate in the study were included by non-probability, purposive sampling technique. Those who were absent at the time of data collection, having IV cannuala on dorsal metacarpal and having postnatal complications were excluded. The study was performed after the clearance of the institutional ethical committee and local authorities. The participants were randomly divided into experimental and control group (n=30 each)

The structured tool (Section A: Socio-demographic details; Section B: Modified numerical rating pain scale) was designed after extensive literature reviews and expert discussion.[9] Both, the tool and learning package were validated by 14 experts from obstetrics and gynaecology nursing, MD obstetrics and gynaecology, and statistics. Rater inter rater reliability was used to find out the reliability of the numerical pain rating scale. The reliability of the tool was determined using Spearman's Rank Correlation Coefficient. Pre and post-experimental data (intervention being learning package) were collected to determine the reduction in pain by using the tool. Pre-experimental pain

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evaluation was conducted by providing study participants the tool and arbitrarily grading the response as: No pain (0), Mild Pain (1-3), Moderate pain (4-6), Severe pain (7-9) and Worst pain (10). After pre-experimental evaluation, mothers from the experimental group were given hand massage for five minutes each day till 3rd day; whereas the mothers from the control group followed routine approach. Post-experimental pain score was evaluated on the 3rd day of delivery. Responses were graded similar to the pre-experimental evaluation.

A pilot study was conducted in a randomly selected hospital at Kolhapur on 14 willing participants (seven each in both the experimental and control group). The results were recorded for pre- and post-experimental response.

The data collected were organised in Excel (2016) and analysed using R software. The difference in pre and post-test score were compared using paired t test. Whereas the difference between both the groups were compared using unpaired t test.

3. Results

The pilot study proved that the tool was reliable and consistent, the reliability of the tool was computed as R=0.91.

Table 1 represents frequency distribution of the patients concerning socio-demographic variables. In experimental group, high number of L.S.C.S mothers belonged to the age group 26 to 29 years (46.67%), were primary educated (63.33%), housewives (70%), did not had bad habits (90%), one child (63.33%) and had no history of caesarean section (86.67%).

Table 1: Frequency distribution of the patients concerning socio-demographic variables

Socio-demographic Variables	Experiment Group		Control Group	
Age in years	*(f)*	*(%)*	*(f)*	*(%)*
18 to 21	02	6.67	02	6.67
22 to 25	09	30.00	09	30.00
26 to 29	14	46.67	13	43.33
>30	05	16.67	06	20.00
Religion				
Hindu	19	63.33	20	66.67
Muslim	05	16.67	05	16.67
Christian	05	16.67	03	10.00
Any Other	01	3.33	02	6.67
Education				
Primary Education	13	43.33	16	53.33
Secondary Education	10	33.33	07	23.33
Higher Secondary Education	05	16.67	05	16.67
Graduation & above	02	6.67	02	6.67
Occupation				
Housewife	21	70.00	19	63.33
Private Job	04	13.33	06	20.00
Self-Employee	03	10.00	01	3.33
Government Service	02	6.67	04	13.33
Monthly income in rupees				
<5000	16	53.33	15	50
5001 to 10000	09	30	10	33.33
10001 to 15000	02	6.67	02	6.67
>15000	03	10	03	10
Bad habit				
Yes (Use of tobacco mishri)	03	10	03	10
No	27	90	27	90
Parity				
One	19	63.33	19	63.33
Two	07	23.33	04	13.33
Three	03	10	05	16.67
More Than Three	01	3.33	02	6.67
History of previous Caesarean Section				
Yes	04	13.33	05	16.67
No	26	86.67	25	83.33

Figure 1 (a) and (b) represents the frequency distribution of patients concerning level of pain in experimental and control group respectively. Significant reduction in pain was evident in the experimental group concerning pre and post-test pain scores (Mean difference ± standard deviation = 3.83±0.11; T_{cal}= 32.42; T_{tab}= 2.04; P<0.05). Moreover, when the post-test pain score was compared between experimental and control group, a significant difference in the post-test pain score was observed reflecting the effectiveness of hand massage in reducing LSCS pain (Mean difference ± standard deviation = 4.37±0.09; T_{cal}= 21.56; T_{tab}= 1.68; P<0.05).

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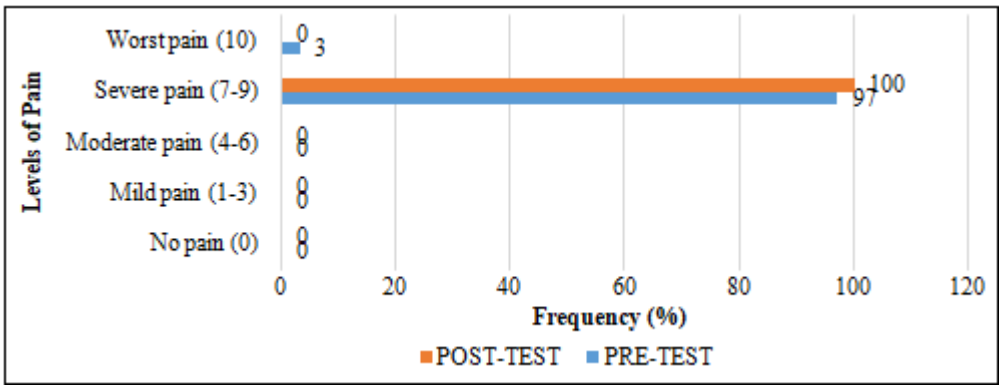

Figure 1 (a): Frequency distribution of patients concerning level of pain in experimental group

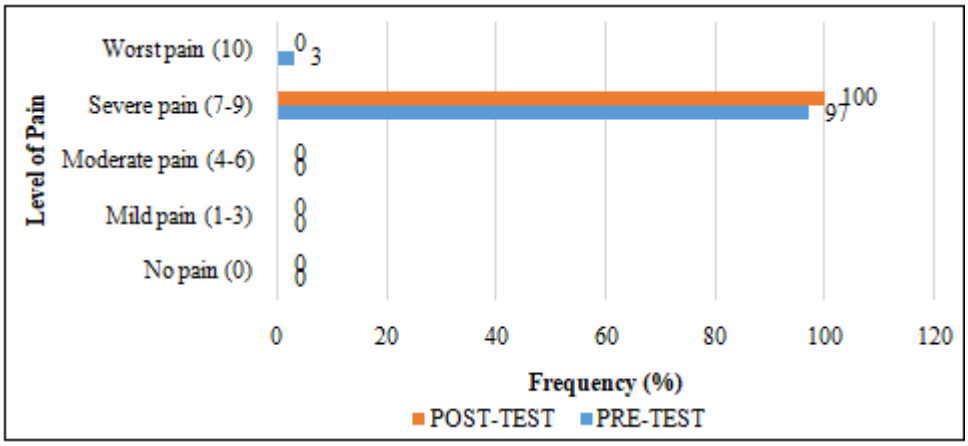

Figure 1 (b): Frequency distribution of patients concerning level of pain in control group

4. Discussion

Caesarean section serves as a life-saviour procedure during pregnancy and labor complications. The dramatic growth in the usage of CS over the last two decades can be attributed to the rise in institutional births and greater use of CS within institutions. [10] Factors relating to pregnant women, their families, health professionals, and health care systems are among the causes of increasing CS within institutions. [11] Privately held institutions have contributed substantially to rising CS rates, while rates in government supported facilities are also rising [10]. Both, demographic characteristics (higher maternal age, higher socio-economic status and higher parity) and clinical indicators (multi-gestation birth, labor arrest disorders, non-reassuring fetal status, mal presentation might be the reason for CS [12-14]. The mother's health and life quality may suffer if the post-caesarean pain is being neglected. This pain is characterized as intense, with an unadorned beginning and an expected termination. Intense and untreated pain can lead to mental and physical disorientation, and a delayed recovery. [15] Therefore, this necessitates the use of additional interventions or therapies. [4,5] Massage is to help with therapeutic processes by altering the neurological system, locomotor system, and cardiovascular system and thereby is known to reduce post-caesarean pain.

The present study is the first of its kind in Kolhapur. It aimed to determine the effectiveness of a hand massage on post-caesarean pain. The demographic characters of the patients are comparable with previous study conducted by Kordi M et al., who studied effectiveness of hand and foot massage on post-caesarean anxiety and pain. [6]

Significant reduction in pain was evident post massage, reflecting the effectiveness of hand massage on post-caesarean pain. This finding is in consonance with the studies done by Kordi M et al and Abbaspoor Z et al.[6,16] However, this depicts that massaging is an approach that includes stimulating the muscles and other soft tissues in the body to enhance oxygen and blood flow to the massaged region.[15] Therefore, this can be considered as a highly effective way of pain relief among post-c-section mothers.

A recent survey has illustrated that prevalence of caesarean section has increased substantially in Maharashtra from 2010-2017 and still is continuously increasing.[2] Hence, Government of Maharashtra should consider recognizing the effectiveness of hand massage to reduce post caesarean pain.

The study's sample size was modest with lack of follow up, thus generalisation might be improved if a larger sample size with follow-up is considered. Also, this research recommends a comparison study with effectiveness of foot massage and a prospective longitudinal study to examine the long-term effect of massage on mother's health.

5. Conclusion

The hand massage was effective in reducing the post-caesarean pain among the mothers. Hence, it can be used as a non-pharmacological therapy to reduce pain among caesarean mothers in Kolhapur.

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