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EFFECT OF SAMA VRITTI PRANAYAMA ON POST CAESAREAN SECTION PAIN, STRESS AND LEVEL OF SATISFACTION AMONG POST PARTUM MOTHERS AT PMCH & RI

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ABSTRACT

AIM: This study aimed to evaluate the "Effect of four square breathing Exercise on Post caesarean Section Pain, Stress and Level of Satisfaction" among Post-Partum Mothers .

METHODS: A Quasi – experimental one group pre – test post – test research design was conducted with total of 60 eligible and consented post caesarean section mothers selected for the study by purposive non probability sampling technique. The level of pain and stress was measured by Modified comfort behavioural pain scale, perceived stress scale (PSS),self satisfaction rating scale (SSRS)

RESULTS: The major finding of the study revealed that "t" test value for pain is 10.676 and for stress is 16.0045 at the level of p= 0.05. At the post test, (37) 62% of the post partum mothers are highly satisfied with the intervention. This study abides that four square breathing exercise is effective in reducing the level of post caesarean section pain and post partum stress at the significance of p>0.05.

ETHICS AND DISSEMINATION: Ethical clearance was obtained from Institutional Human Ethics Committee (PMCHRI-IHEC) on 12-12-2023. Protocol No: PMCHRI-IHEC-156

CONCLUSION: This study concluded that four –square breathing excercises significantly reduced the intensity of post caesarean section pain ,stress as well as achieves a markable satisfaction rate among post caesarean mothers with this intervention .

R E C O M M E N D A T I O N S : FOUR SQUARE breathing excercises should be incorporated into the nursing intervention protocols to effectively improve the well-being of post partum mothers.

INTRODUCTION

Among the several ways of delivery, Caesarean section is a surgical intervention to deliver the baby when normal delivery can increase the risk to mother as well as the baby. Worldwide, number of babies getting delivered via caesarean section has nearly doubled in recent years.

As recommended by **World Health Organisation (WHO),** caesarean delivery should be between **10-15%** of all the deliveries[1]. In India, caesarean section rates have been increasing from 10% to 30%, according to a recent analysis of **National Health and Family Survey (NFHS) 1992-93 to 2015-16**[2]. During postnatal period, woman undergoes a lot physiological and psychological changes in her body. As physiological changes occurs, the uterus begins to contract in order to retain its original structure. These persistent mild contractions are known as after-labour pains or after-pains. The after pains affects the body in such a way similar to traumatic stress, which causes agony for the mother, especially multiparous mother interfering with performing daily routine activity of caring for herself and her baby. After-pains are typically spasmodic in nature and is felt in the lower abdomen as uterus contracts to retain its original form. However, initiation of breastfeeding causes oxytocin to release from the posterior pituitary gland, which leads to further uterine contractions. It may also trigger the neuro-hormonal stress response, which further leads to anxiety, insomnia, and fatigue in postnatal mothers [3].

Prolonged after pains not only affects the daily activities of the mother but also interferes with the mother – child bonding and provide a worst postnatal experience to the mother. Thus, it is crucial to manage the after pains effectively and enhance early relaxation of the uterus.

A caesarean section (CS) is a major surgery with an estimated **18.5 million** procedures being performed each year in the world [4]. Therefore, the nurses' role is to manage and reduce patients' postoperative pain effectively. Some postoperative pain management can be conducted by nurses independently including complementary therapy, music therapy, cold application, and guided imagery.

Post caesarean pain affects the body similar to traumatic stress causing rise in pulse, blood pressure and tightness of muscles Many studies done on after labour pain had assessed its nature and characteristics as well as non- pharmacological methods to minimize it. Non - pharmacological measures such as prone position, oil massage, Kegel's exercise, deep breathing exercise have been found useful in reducing post caesarean section pain. Four-square breathing exercise, also known as box breathing, is relatively a new technique of breathing exercise that can help in reducing after-labour pain in postnatal women. It is very simple to learn and to practice as well as it can be practiced virtually anywhere and anytime. **(Pamasamy& Suzan, 2014 &Scott, 2020)**

Four square breathing exercises are a non-pharmacological pain reliever that has been shown to be beneficial in conditions other than a Post caesarean section pain **(Basyouni & Gohar, 2017).** In the present study, the investigator will use four-square breathing exercises.

Therefore, this study was carried out to investigate the effect of four square breathing exercise in reducing post caesarean section pain which will actively improve daily routine activities of postnatal mothers. The present study was conducted to evaluate the impact of four square breathing exercise on level of pain and stress among post caesarean section mothers, which path out for quick adaptation to their new phase

Objectives:

To assess the level of post caesarean section pain and post partum stress among postpartum mothers

1. To evaluate the effectiveness of four square breathing exercise in post caesarean section pain, post Partum stress and level of satisfaction among postpartum mothers
2. Compare and analyze the post caesarean section pain, stress and level of satisfaction among postpartum mothers.
3. Associate the participants demographic variable with the level of post caesarean section pain and post partum Stress

1 METHODS and RESOURCES

HYPOTHESES

H1 – At a significance level of P<0.05, there will be statistically significant differences and decrease in the post caesarean section pain in the post test among the post Partum mothers who have undergone caesarean section

H2 - At a significance level of P<0.05, there will be statistically significant differences and decrease in the post partum stress in the post test among the post Partum mothers who have undergone caesarean section

H3 – Post caesarean mothers will report higher levels of satisfaction in the post test with a statistically significant differences (P<0.05)

H4 - There will be a significant association between the level of post caesarean section pain and post partum stress Among post caesarean mothers with their selected demographic Variables.

APPROACH

This study adopted quantitative research approach

DESIGN

This study included in Quasi – experimental one group pre - test post – test research design.

VARIABLES

Dependent Variable: Post – caesarean section pain and post partum stress is the dependent variable of this study

Independent Variable: Four square breathing exercise is the independent variable of this study

Demographic Variable age, religion, educational status, occupation, type of work, monthly income, type of family, residence and social support

4 SETTING OF THE STUDY

This study was conducted in Panimalar Medical college Hospital and Research Institute, Chennai, Obstetrical ward. This is a NABH accredited hospital consisting of 720 beds with all modern equipment and facilities. Out of these, 50 beds are occupied by the obstetrics cases included antenatal ward, postnatal ward and labour room separately.

POPULATION

The population of the study was post caesarean section mother

Target Population

Primiparous and Multiparous mothers admitted in postnatal ward at PMCHRI

SAMPLE

In this study, the sample was post caesarean mothers within 2 days (48 hours) of delivery

SAMPLE SIZE

The sample size for the study was 60 postpartum mothers who have undergone caesarean section and fulfill the inclusion criteria.

8 SAMPLING TECHNIQUE

Purposive non probability sampling technique was adopted for selecting the sample. Total of 60 post caesarean section mothers within 48 hours of delivery under the age group of 18 years to 35 years were selected for the study based on the inclusion and exclusion criteria.

3.9 CRITERIA FOR SAMPLE SELECTION

Inclusion Criteria

- Post caesarean section mothers, who have undergone caesarean section within 2 days, who were either primigravida or multigravida, under the age group 18-35 years.
- Free from any medical or obstetric risk factors.
- Do not receive any pharmacological pain relief substance.
- Delivered in the previous 24 hours, who had delivered full term, live single fetus (37 to 42 weeks)

Exclusion Criteria

- Post caesarean section mothers, whose newborn had any congenital disorder or had a still birth or neonate died within few hours of delivery.
- Who were diagnosed to have any psychological illness
- Taking any other non pharmacological therapy for post caesarean section pain and stress relief,
- Diagnosed to have any postnatal complication or respiratory disorder will be excluded

SAMPLE SIZE CALCULATION

Sample size was calculated by the following formula:

According to data from literature (vasava et al., 2021) , concerning level of significance of 5%, and power of study of 80%, the sample size

$$N = \frac{[(Z\alpha/2 + Z\beta)2 \times \{2(SD)2\}]}{(\text{mean difference between the two groups})2}$$

- ✓ zα/2: depends on 5% level of significance, which equals 1.96
- ✓ zβ :depends on 80% power, which equals 0.84 .
- ✓ SD = standard deviation

$$n = [(1.96 + 0.84)2 \times \{2(3.2)2\}]/ (1.7)2$$

n=55.6

So, the required sample number is 55

DISCUSSION

A quasi experimental study was done to evaluate the effectiveness of four square breathing exercise among post caesarean section pain, stress and level of satisfaction among mothers at PMCH&RI, Chennai. The findings of the study have been discussed with interference to the objective and relevant study from the review of literature.

DESCRIPTION OF THE DEMOGRAPHIC VARIABLES

The researcher found that in post caesarean mothers according to their age groups shows 38(63.3%) of them were in the age group of 25 – 35 years, and the majority 32(53.3%) of them were Hindus , 21(35%) of them mothers are graduate, 33(63%) of the mothers were unemployed, 42(72%) of the mothers were sedentary worker, 41(28.3%) of them mothers had monthly income of Rs.20,000 – 25,000, 41(66.6%) of them mothers belongs to nuclear family, 22(51.6%) of them mothers were from urban area, 50(83.3%) of them mothers had not undergone Yoga classes, 56(93.3%) of them mothers had not undergone Parenthood classes and 39(67%)of them post caesarean section mothers had received Social Support from their mothers.

Objective - 1: To assess the level of post caesarean section pain and stress among postpartum mothers in pre test and post test

In pre test majority (26) 45% of post partum mothers had experienced severe pain and about (18) 28% of the post partum mothers had experienced moderate pain and (15) 26% of the post partum mothers had experienced mild pain and about (1) 1% of the post partum mothers had experienced no pain.

In post test majority (28) 46% of post partum mothers had experienced mild pain and about (26) 43% of the post partum mothers had experienced moderate pain and (6) 10% of the post partum mothers had experienced no pain and about (1) 1% of the post partum mothers had experienced severe pain.

In pre test of post caesarean mothers (36) 60% of The mothers had experienced high level of stress, and about (14) 22% of The mothers had experienced moderate level of stress, and about (10) 18% of The mothers had experienced low level of stress respectively.

In post test of post caesarean mothers (1) 1% of The mothers had experienced high level of stress, and about (35) 59% of The mothers had experienced moderate level of stress, and about (24) 40% of The mothers had experienced low level of stress respectively.

The study implies that mild, moderate and severe post caesarean section pain and post partum stress is common among the post caesarean mothers and the probability of no pain is relatively very less than 1%. This study emphasis the importance of some innovative measures such as four square breathing exercise to reduce their post caesarean section pain and post partum stress.

COMPARISON BETWEEN THE PRE-TEST AND POST TEST SCORES OF POST CAESAREAN SECTION PAIN

Table 4.3: Mean, standard deviation and mean percentage on post caesarean section pain in pre test and post test (N = 60)

GROUP	MAXIMUM SCORE	PRE TEST			POST TEST		
		MEAN	S.D	MEAN %	MEAN	S.D	MEAN %
EXPERIMENTAL GROUP (n = 60)	40	26.0166	8.52	31.8	15.3	6.111	23.3

The above table shows that the pre-test score was 26.0166± 8.52 and mean percentage was 31.8 where as in post test mean score was 15.3±6.111 and mean percentage was 23.3. It reveals that four square breathing exercise was effective in reducing the post caesarean section pain.

COMPARISON BETWEEN THE PRE-TEST AND POST TEST SCORE ON LEVEL OF STRESS

Table 4.4: Mean, standard deviation (sd) and mean percentage of level of stress among post caesarean mothers in pre test and post test (N = 60)

GROUP	MAXIMUM SCORE	PRE TEST			POST TEST		
		MEAN	S.D	MEAN %	MEAN	S.D	MEAN %
EXPERIMENTAL GROUP (n = 60)	40	26.216	10.064	24%	13.2	5.755	16%

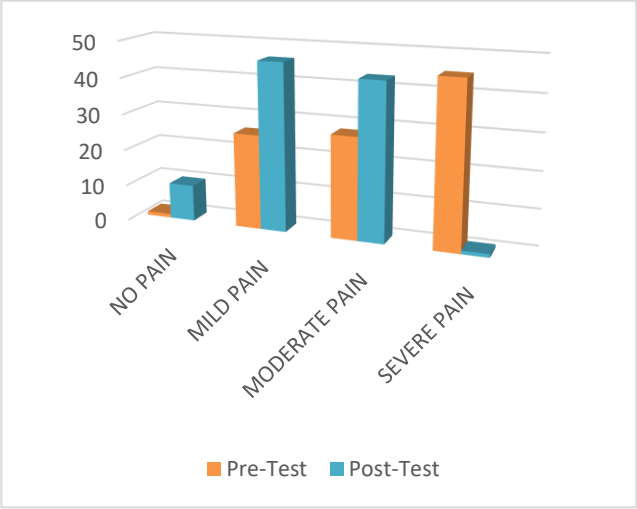

FIGURE 3.1 A percentage distribution of post caesarean pain in pre-test and post test

In pre test majority (26) 45% of post caesarean mothers had experienced severe pain and about (18) 28% of the post caesarean mothers had experienced moderate pain and (15) 26% of the post caesarean mothers had experienced mild pain and about (1) 1% of the post caesarean mothers had experienced no pain.

In post test majority (28) 46% of post caesarean mothers had experienced mild pain and about (25) 43% of the post caesarean mothers had experienced moderate pain and (6) 10% of the post caesarean mothers had experienced no pain and about (1) 1% of the post caesarean mothers had experienced severe pain.

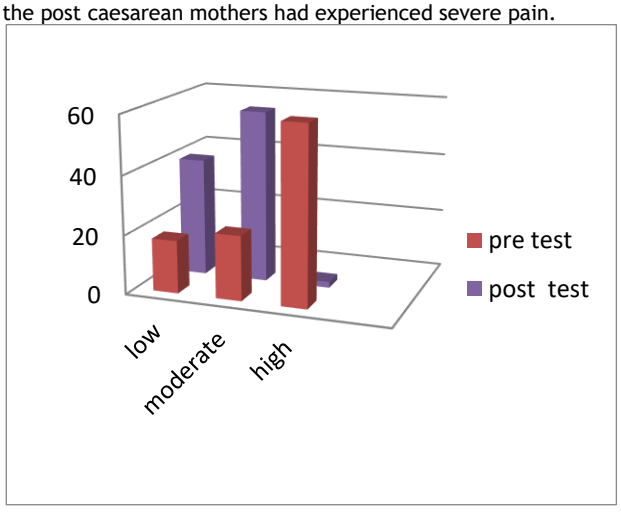

FIGURE 3.2 A percentage distribution of post partum stress in pre test and post test

In pre test of post caesarean mothers (36) 60% of The mothers had experienced high level of stress, and about (14) 22% of The mothers had experienced moderate level of stress, and about (10) 18% of The mothers had experienced low level of stress respectively.

In post test of post caesarean mothers (1) 1% of The mothers had experienced high level of stress, and about (35) 59% of The mothers had experienced moderate level of stress, and about (24) 40% of The mothers had experienced low level of stress respectively.

The above table shows that in the pre test mean Score was 26.216±10.064 and mean percentage 24%. Where as in post test mean Score was 13.2 ±5.755 and mean percentage was 16%.

Objective - 2: To evaluate the effectiveness of four square breathing exercise in terms of level of pain, stress and level of satisfaction among postpartum mothers

For the post caesarean section pain, the mean score in pre test was 26.216 ± 8.52 and the mean score in post test is 15.3 ± 6.111. The 't 'value is 10.676 which is significant at P≤0.05 level. Thus it becomes evident that four square breathing was effective in reducing the post caesarean section pain in post test . Hence, H[1] is retained.

For post partum stress, the mean score in pre test was 26.216 ± 10.064 and the mean score in post test is13.2 ± 5.755. The 't 'value is 16.0045 which is significant at P≤0.05 level. Thus, it becomes evident that four square breathing was effective in reducing the post partum stress in post test . Hence, H_2 is retained.

In post test of the intervention 37 (62%) of the post caesarean section mothers had experienced high level of satisfaction and about 17 (28%) of the post caesarean section mothers had experienced moderate level of satisfaction, and about 6 (10%) of the mothers had experienced low level of satisfaction respectively. Hence, H_3 is retained.

The above findings, reveals that four square breathing exercise is effective in reducing post caesarean pain and post partum stress among post caesarean mothers. The post caesarean section mothers reports higher level of satisfaction in the post test regarding the intervention.

Objective - 3: Compare and analyze the level of pain, stress and level of satisfaction between the pre test and post test.

The mean, standard deviation and 't' value between the pre test and post test were compared and analyzed and the findings reveals that, there is a significant difference in the pre test and post test. And the level of satisfaction was relatively high in the post test.

Objective - 4: Associate the participants demographic variable with the level of post caesarean section pain and post partum stress

The present study reveals that, there was no significant association between the level of post caesarean section pain and post partum stress with their demographic variables at p≤0.05

RESULTS ; Based on the findings of the present study, it can be concluded that four-square breathing exercise significantly reduced intensity of after pains and reduced the frequency of pain medication , enhanced early initiation of breast feeding as well as achieved satisfaction of postpartum mothers with the intervention. So, the study aim and hypothesis were achieved within the framework of the present study.

Recommendations:

Based on the findings of the present study, the following recommendations are suggested:

In-service training programs should be carried out for postpartum health care providers to increase their awareness about the positive effects of 4-square breathing exercises in the management of after-labor pains and enhance early initiation of breastfeeding as well as satisfaction

- Four square breathing exercises is a practice that is inexpensive, effective, and easy to apply during thehospitalization period. Therefore, it should be incorporated in the nursing intervention protocols of post-partum mothers.
- The curriculum of basic nursing / midwifery education as well as continuing education should

entail the four-square breathing exercises for management of afterpains

- Patient's education about Four square breathing exercises should be implemented with all post-partum women to help relieve pain
- A baseline information leaflet about the importance and the way of performing 4-square breathing exercises to manage after-labor pain, should be designed, and distributed to all postpartum women.
- Future trials should aim to include larger sample sizes and different settings to justify the causal association between the 4-square breathing exercises and after-labor pains.
- Further study should be performed to evaluate the effect of using 4-square Breathing exercises for the management of pain following cesarean section delivery

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