ORIGINAL ARTICLE OPEN ACCESS

Effectiveness of combination of back massage and affirmation relaxation on adequacy of breastfeeding among neonates of caesarean section mothers

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ABSTRACT
Breast feeding is the unique source of nutrition that plays an important role in the growth, development and survival of infants. It is the baby's fundamental health promotion behavior that must be supported by an informed, willing mother and cared society. There are various difficulties mothers encounter during breast feeding after a caesarean delivery which leads to cessation breast feeding. Combination of back massage and affirmation relaxation is one of the safest, economical and easy method to improve lactation among caesarean others during postpartum period. The aim of the study is to assess the effectiveness of combination of back massage and affirmation relaxation on adequacy of breastfeeding among neonates of caesarean section mothers. A quantitative, quasi experimental nonrandomized pre test post test control group design was used to conduct the study at Fatima Hospital, Mau, U.P. 24 mothers after lower segment caesarean section were selected using non probability purposive sampling technique based on inclusion and exclusion criteria. Data was collected using different semi structured questionnaire and observation checklist. Combination of back massage and affirmation relaxation was given 4 times a day for experimental group mothers on day4, 5 and 6 for 10-15 minutes each. Data collection was done on 3rd and 6th post operative days. Data was analyzed using descriptive and inferential statistics, Wilcoxon signed rank test and Mann Whitney U test. Baseline characteristics and pre intervention scores were comparable in both groups. The study results revealed that the obtained 'U' value after intervention for frequency of urination and stool, U = 32.50, for satiety, U = 31.50 and for newborn breast feeding behavior obtained 'U' = 39.0. The U value of all these parameters were statistically significant at p<0.05 except newborn breastfeeding behavior (p>0.05). Based on the above findings we can conclude that the combination of back massage and affirmation relaxation technique is an effective intervention to improve breastfeeding outcome among neonates of caesarean section mothers.
Key words: Back massage, Affirmation relaxation, lactation

INTRODUCTION
Breast milk is the best suitable food to meet the biological, psychological and nutritional needs of a newborn. Breastfeeding is beneficial not only for the infants and mothers but also for the society. WHO has recommended exclusive breastfeeding up to 6 months of age and mixed feedings up to 2 years [1]. Still exclusive breast feeding rate is low around the world (44%). WHO and UNICEF jointly initiated BFHI (Baby friendly hospital initiative) to implement practices that protect promote and support breastfeeding [2]. NFHS 5 shows that only 59.7% of children in under 6 months of age exclusively breastfed in Uttar Pradesh, India. There are various factors which influence exclusive breastfeeding.
Caesarean section is strongly related with delayed lacto genesis, more supplementation and shorter duration of breastfeeding[3]. It is hypothesized that the hormonal pathway of lacto genesis is interrupted following caesarean delivery due to pain, fatigue or stress, results in decreased oxytocin secretion and ejection of breast milk[4,5]. They experience greater problems with latching and positioning of the baby during breast feeding. They find difficulty to feed the baby with an IV drip in their arm, not able to move freely and pick up baby as a mother after vaginal delivery. So they need additional support and assistance to manage these minor problems during immediate post partum period[6].
Lack of confidence is a factor which inhibits breast milk production. When mothers do not trust their body to produce enough milk, those around them feel that they are not capable of feeding their offspring and as they experience increased feelings of failure that leads mothers quitting breast feeding before practically

ever starting it. Sometimes babies are kept in th e nursery for long periods for observation and also to give rest to the mother. Large periods of separation between mother and newborn limits establishment of lactation. Sometimes first breast feeding in the OT also is delayed or not given at all. All these factors contribute to the less milk production in the immediate post partum period of a caesarean mother [6, 7, 8]. There are various non pharmacological, traditional measures performed to improve lactation include imagery, hypno breastfeeding[9], psychological support, affirmation relaxation techniques, acupressure and acupuncture[10], herbs such as fenugreek seed, fennel seed, chaste tree seed, black cumin , anise seed, blessed thistle herb, milk thistle herb[11] and massage therapy etc. Commonly used massage therapy by postpartum mothers to increase breast milk production are namely back massage (oxytocin massage) [12, 13], oketani relaxation massage [14] and lactation massage [15]. All these massage therapies promotes oxytocin secretion. The widely used galactagogues are metaclopromide and domperidone [11].

Affirmation relaxation can create a relaxed state of physical and emotional condition. Mother with relaxed condition (no pain, anxiety and stress) will be able to improve her breast feeding self efficiency[16]. Besides positive mind and belief build through affirmation relaxation will strengthen someone's self confidence. In turn it will create self integrity to build good breast feeding[17]. Since body and mind are so interconnected and we cannot separate one from the other, if we take care the mind, ie. anxiety/stress, of caesarean section mothers through affirmation relaxation, this will boost their morale and will lead her to a state of relaxation and in turn it will increase the breast milk volume and will strengthen her self confidence in breast feeding. Thus breast feeding will become a pleasant experience for the mother [10].

Therefore investigator thought of assessing the effect of combination of back massage and affirmation relaxation techniques to improve the breastfeeding outcome among caesarean section mothers. These methods help to relax both body and mind and promote the release of oxytocin and prolactin which in turn promote breastfeeding. The aim of the study is to assess the effectiveness of combination of back massage and affirmation relaxation on adequacy of breastfeeding among neonates of caesarean section mothers.

Hypotheses

All hypotheses will be tested at 0.05 level of significance.

H1-There will be a statistically significant improvement in adequacy of breastfeeding among neonates of experimental group mothers who underwent lower segment caesarean section after back massage and affirmation relaxation technique.

H2– There will be a statistically significant improvement in adequacy of breastfeeding among neonates of experimental group mothers than control group mothers who underwent lower segment caesarean section.

MATERIAL AND METHODS

A quantitative evaluation approach was used in this study to assess the effectiveness of back massage ad affirmation relaxation on adequacy of breastfeeding among neonates of caesarean section mothers. A quasi experimental nonrandomized pre test post test control group design was adopted to achieve the objectives of the study. The present study was approved by institutional ethics committee, Saveetha Medical College Hospital, Chennai (No.004/02/2022/IEC/SMCH dated 14/02/2022)

Setting of the study

The present study was conducted in Obstetrical and Gynaecological wards of Fatima Hospital, Mau, UP. 24 lower segment caesarean section mothers were selected using non probability, purposive sampling technique based on inclusion and exclusion criteria.

Inclusion and exclusion criteria

The study included mothers who delivered normal term babies by lower segment caesarean section, mothers with single baby, mothers between 48-72 hours of lower segment caesarean section and new born with normal sucking, swallowing and rooting reflexes. The mothers who were critically ill, mothers experiencing any complications of surgery or anaesthesia, mothers with nipple or breast anomalies, mothers with post-partum psychosis and new-born with major congenital anomalies were excluded from the study.

Description of the tool

There were three parameters used in this study to assess the effectiveness of back massage and affirmation relaxation on adequacy of breastfeeding .

Frequency of urination and stool was assessed by asking the mother to note down the number of times baby passed urine and stool per day on the given format. Scoring Procedure: 1-3 times/day – score 1, 4-6 times/day- score 2, more than six times/day- score3. Maximum score is 6(3+3). Score is interpreted for adequacy of breast feeding as follows: Inadequate breast feeding -1-4 and adequate - 5-6.

Satiety of baby during and after feeding was assessed using observation checklist which included 8 components. Presence of these variables was scored 1 and absence was scored 0. Total score is 8. Score is interpreted as 0-2 – Poor satiety, 3-5 – Average satiety, 6-8 – Good satiety. Technique: Observation

A standardized tool - New born breastfeeding behaviour assessment tool[18] was also used to assess the adequacy of breastfeeding. Total items in this tool are 4. Each item is rated in 0-3 rating scale. Total score is 12. Total score was calculated by adding the score obtained for 4 items Grading of breastfeeding behaviour 0-4 least favorable 5-8 favorable 9-12 highly favorable Technique -observation

Data collection procedure

The present study was conducted in the post natal wards of Fatima Hospital, Mau. Orientation about the study, intervention and protocol were explained to the doctors and nursing staff working in the post natal wards. The researcher paid attention to the ethical issues such as maintaining confidentiality and getting informed consent from all the participants and husbands or close relative of mothers who were willing to participate in the study. The study subjects were selected as per purposive sampling technique

Data collection was done from control group and from experimental group on 3rd (Pre-Test) and 6th post operative day (Post-test). Socio personal, obstetrical, and new-born data were collected. Experimental Group mothers were given intervention, back massage and affirmation relaxation. The steps of procedure were explained to the mother before doing it. First, the mother was asked to sit upright on a chair with a table in front and support the incision by holding a pillow. Take a few (5) normal breaths and then take a slow deep breathe in. Hold it for 2-5 seconds; gently and slowly breathe out through mouth. Repeat it for 5 times. Then she was asked to lean forward by keeping the head on a table and then after exposing the back, gentle pressure was given on the back using both thumbs on either side of the spine in circular motion between shoulder blades. While doing massage investigator asked the mother to repeat simple positive affirmative sentences silently like "I am calmer and more relaxed, milk production is smooth and plenty, my baby is healthy and I am a great mother, my baby is getting enough milk, I get enough support from my family; I get enough support from my hospital staff etc… Then the whole procedure was repeated. It was continued for 10 minutes. Just after massage, baby was put to breast for feeding. This procedure was done 4 times a day for 3 days. (7.00am, 11.00 am and 3.00p.m and 7.00pm. Mothers of control group were not given any treatment except the routine health education regarding the postnatal care, importance of breast feeding etc. Data was collected on 3rd and 6th post operative days.

Analysis of data

The data were analyzed by means of descriptive and inferential statistics. Results on continuous measurements are presented on mean ± SD and categorical variables are presented in frequency and percentage. Wilcoxon sign rank test is used to assess the effectiveness of back massage and affirmation relaxation on breastfeeding outcome before and after intervention within experimental group and control group. Mann Whitney 'U' test is used to compare the effectiveness of intervention between experimental and control group.

RESULTS

Table 1- Frequency and percentage distribution of frequency of urination and stool among neonates of caesarean section mothers before and after intervention in the experimental and control group. n=24(12+12)

Frequency of urination and stool	Experimental group				Control Group			
	Before Intervention		After Intervention		Before Intervention		After Intervention	
	f	%	f	%	f	%	f	%
Inadequate (1-4)	12	100	1	8.3	12	100	7	58.3
Adequate (5-6)	-	-	11	91.7	-	-	5	41.7

Table 1 demonstrates that in both experimental and control group before intervention, all (100%) newborns had inadequate breast feeding in terms of frequency of urination and stool.

In experimental group, after intervention, 91.7% newborns had adequate breast feeding and 8.3% newborns had inadequate breast feeding whereas in control group, 41.7% newborns had adequate breast feeding and 58.3% newborns had inadequate breast feeding.

Table 2- Frequency and percentage distribution of satiety of neonates among caesarean section mothers before and after intervention in the experimental and control group. n=24(12+12)

Satiety	Experimental group				Control Group			
	Before Intervention		After Intervention		Before Intervention		After Intervention	
	f	%	f	%	f	%	f	%
Poor (0 – 2)	3	25	0	0	6	50	0	0
Average (3 – 5)	9	75	1	8.3	6	50	5	41.7
Good (6 – 8)	0	0	11	91.7	0	0	7	58.3

Table 2 before intervention, in experimental group, majority (75%) of newborns had average satiety and 25% newborns had poor satiety. After intervention, 91.7% newborns had good satiety and 8.3% newborns had average satiety. Before intervention (3rd day) in control group 50% newborns had average satiety and 50% had poor satiety after intervention on 6th day, 58.3% had good satiety and 41.7% had average satiety.

Table 3- Frequency and percentage distribution of Newborn breast feeding behaviour among caesarean section mothers before and after intervention in the experimental and control group. n=24(12+12)

Newborn Breast Feeding Behaviour	Experimental group				Control Group			
	Before Intervention		After Intervention		Before Intervention		After Intervention	
	f	%	F	%	f	%	f	%
Least Favourable (0 – 4)	2	16.7	0	0	1	8.3	0	0
Favourable (5 – 8)	10	83.3	0	0	11	91.7	3	25
Highly Favourable (9 – 12)	0	0	12	100	0	0	9	75

Table 3 illustrates that before intervention on day 3, in experimental group, 83.3% newborns had favourable score and 16.7% had least favourable score. In control group, 91.7% had favourable score and 8.3% had least favourable score. After intervention, on day 6, in experimental group, all (100%) newborns had highly favourable score and in control group, 75% newborns had highly favourable score and 25% newborns had favourable score.

Table 4:Comparison of effect of back massage and affirmation relaxation on frequency of urination and stool, satiety of newborn and newborn breast feeding behavior in experimental and control group after intervention n=12

Sl. No.	Parameter	Group	Time	Mean	SD	Wilcoxon Sign Rank Test & p value
1	Frequency of Urination and Stool	Experimental	Before Intervention	2.83	0.72	Z=3.065 p=0.002*
			After Intervention	5.17	0.58	
		Control	Before Intervention	3.0	0.74	Z=3.069 p=0.002*
			After Intervention	4.25	0.97	
2	Satiety	Experimental	Before Intervention	2.83	0.58	Z=3.133 p=0.002*
			After Intervention	6.50	0.79	
		Control	Before Intervention	2.58	0.67	Z=3.166 p=0.002*
			After Intervention	5.58	0.79	
3	Newborn Breast feeding behaviour	Experimental	Before Intervention	5.25	0.75	Z=3.134 p=0.002*
			After Intervention	10.17	0.83	
		Control	Before Intervention	5.50	0.90	Z=3.090 p=0.002*
			After Intervention	9.25	1.14	

*p<0.05 Significant

Table 4 shows the comparison of effect of back massage and affirmation relaxation on frequency of urination and stool, satiety of newborn and newborn breast-feeding behavior of experimental group and control group before and after intervention. Related to frequency of urination and stool experimental group z and p values are z=3.065and p=0.002 and control group z and p values are z=3.069 and p=0.002. Based on satiety during and after breast feeding experimental group z and p values are z=3.133 and p=0.002 and control group z and p values are z=3.166 and p=0.002. Based on newborn breastfeeding behavior, experimental group z and p values are z=3.134 and p=0.002 and control group z and p values are z=3.090 and p=0.002. All the p values are significant at p<0.01. It shows that there is a statistically significant improvement in frequency of urination and stool, satiety of newborn during and after breastfeeding and newborn breastfeeding behavior among experimental and control group mothers after intervention and

compared to control group, experimental group had higher mean scores in all the parameters. Hence it is inferred that combination of back massage and affirmation relaxation is an effective intervention to improve breastfeeding among experimental group mothers underwent lower segment caesarean section.

Table 5 Comparison of effect of back massage and affirmation relaxation on frequency of urination and stool, satiety of newborn and newborn breast feeding behavior between experimental and control group n=24(12+12)

Sl. No.	Parameter	Test	Group	Mean	SD	Mann Whitney 'U'Test & p value
1	Frequency of Urination and Stool	Before intervention	Experimental	2.83	0.72	U= 63.0 p=0.630
			Control	3.00	0.74	
		After intervention	Experimental	5.17	0.58	U= 32.50 p=0.020*
			Control	4.25	0.97	
2	Satiety	Before intervention	Experimental	2.83	0.58	U= 55.50 p=0.347
			Control	2.58	0.67	
		After intervention	Experimental	6.50	0.80	U= 31.50 p=0.017*
			Control	5.58	0.79	
3	Newborn Breast feeding behaviour	Before intervention	Experimental	5.25	0.75	U= 54.5 p=0.319
			Control	5.50	0.90	
		After intervention	Experimental	10.17	0.83	U= 39.0 p=0.060
			Control	9.25	1.14	

*p<0.05 Significant

Table 5 demonstrates the comparison of effectiveness of back massage and affirmation relaxation on frequency of urination and stool, satiety of newborn and newborn breast feeding behavior between experimental group and control group mothers underwent lower segment caesarean section. With regard to frequency of urination and stool, after intervention, the obtained U value was 32.50, p=0.020 and for satiety the obtained U value after intervention was 31.50, p=0.017. Related to newborn breast feeding behavior obtained 'U' value was 39.0, p=0.060. The U value of all these parameters were statistically significant at p<0.05 except newborn breastfeeding behavior (p>0.05). Hence it is inferred that the combination of back massage ad affirmation relaxation technique was effective in improving breastfeeding outcome among neonates of caesarean section mothers.

DISCUSSION
Back massage is a noninvasive procedure which relaxes the body, reduces the stress and results in improved breast milk volume. In this study back massage followed by affirmation relaxation is able to improve lactation. Both techniques reduces stress, back massage relaxes body while affirmation relaxation relaxes mind. Breathing relaxation causes certain physiological responses in our body. It reduces heart rate, blood pressure, increased amplitude of theta waves on EEG recording, improves parasympathetic activity and revitalize our body with full of energy [10].
Positive self affirmation improves confidence and reduces stress. Self affirmation lowers epinephrine level. Thus the combination of back massage and affirmation relaxation used helps to calm the mother which in turn causes increased oxytocin secretion. Immediately afterbirth, the hormones prolactin and oxytocin are released from the pituitary which stimulates smooth production and ejection of breast milk. Back massage will stimulate parasympathetic nerves to transmit commands to hindbrain, especially to medulla oblongata. Medulla oblongata will directly send message to the hypothalamus so that the prolactin and oxytocin will flow out [19, 20]. The oxytocin secreted by the posterior pituitary causes the contraction of myoepithelial cells surrounding the alveoli and ducts. The contraction of these cells expels the milk out of the alveoli through the ducts to the lactiferous sinuses where it is readily accessible to the baby as the baby sucks [21].
Many studies support the findings of the present study. The findings of the present study are in consistent with a study conducted on effectiveness of back massage on lactation among mothers having undergone caesarean section at selected hospitals of Pune city which revealed that breast feeding, satiety and post feed weight of the neonate was significantly improved in experimental group than control group with p value <0.05 [22].
There are studies carried out to assess the effect of back massage on lactation among postnatal mothers revealed that there was a significantly higher post feed weight gain, breast milk secretion, higher mean number of urinations and stools passed per day, longer duration of post feed sleep and better satisfaction in the experimental group than the control group [10, 13, 19]. Massage techniques are quite common in

Indonesia to improve lactation during immediate postpartum period. The findings are compatible with the findings of the present study. Massage carried out regularly, properly for 3-4 times a day can stimulate breast milk production as it causes production of oxytocin, prolactin and babies are fed well throughout the day. This will exclude the need for formula feeding. In addition, if the massage is done by husband, immediate relative or friend, mothers will feel more loved, cared, happy and calm and will lead to more production of breast milk [20].

Maternal psychological factors influence breast milk production including stress, lack of confidence, anger, worry, fatigue, lack of support from family and husband to the other. A good psychological condition will motivate her for frequent feeding and frequent skin to skin contact also will stimulate increased oxytocin production and breast milk production and BM will release smoothly from the breast when the mother is comfortable and relaxed [23].

Like present study, several studies conducted in different settings proved that back massage and affirmation relaxation can improve breastfeeding outcome of neonates of caesarean section mothers.

CONCLUSION
The study results prove that the combination of back massage and affirmation relaxation is able to improve breastfeeding of neonates among caesarean section mothers. The combination of back massage and affirmation relaxation is an alternative non pharmacological, non invasive, economical and simple method to improve breastfeeding outcome and thereby exclusive breastfeeding during postnatal period. It can be taught and performed by health professional or any member of the family at home.

LIMITATIONS
The result of the study cannot be generalized to all caesarean section mothers as the sample size was small.

RECOMMENDATIONS
- Similar study can be conducted with large sample size to generalize the findings.
- A similar study can be conducted in different settings to assess the effectiveness the intervention on lactation among caesarean section mothers.
- A longitudinal study can be conducted to assess the impact of the intervention on exclusive breast feeding for 6 months after caesarean delivery.

CONFLICT OF INTEREST: None

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