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RESEARCH ARTICLE

AN EXPERIMENTAL STUDY TO EVALUATE THE EFFECTIVENESS OF APPLICATION OF ALMOND OIL MASSAGE ON BREAST FEEDING AMONG POSTNATAL MOTHERS UNDERGONE LSCS AT MGMCRI PUDUCHERRY

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ABSTRACT

The breast milk is very healthy and full of nutrition, it provides the primary source of nutrition for newborns before they are able to digest more diverse food. The breast milk also contains balanced nutrients that are require for brain development, growth and a healthy immune system that act against viruses, bacteria, and parasites, since an infant's immune system is not fully developed until the age of 2 yrs. Due to some reasons, few lactating mothers unable to give breast milk to their infant when there is an inadequate milk secretions. Consuming almond oil during lactation promotes milk secretions, as helps in synthesis of Vitamin-B, and also helps in emulsification of globules. As almond oil contains fatty acids, proteins, calcium, and linolenic acids and it is having emollients and helps in increased secretion of breast milk. **Aim:** This study was aimed to assess the effectiveness of application of almond oil massage on breast feeding among postnatal mothers undergone LSCS at MGMCRI Puducherry. **Methodology:** Experimental Research Design group pre-test post-test design and 60 mothers Undergone LSCS were selected using simple random sampling technique-lottery method was adopted for this study. **Results:** The study results show that almond oil massage was effective in promoting breast feeding among post natal mothers underwent LSCS by using UNICEF based breast feeding assessment tool and which can be effectively utilized as a non-pharmacological management for promotion of breast milk secretion . The obtained test value was significant at $p<0.001$* level. Thus the application of almond oil massage can be used as a complimentary therapy in promoting breast milk secretion.

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INTRODUCTION

The breast milk is very healthy and full of nutrition; it provides the primary source of nutrition for newborns before they are able to digest more diverse food. The breast milk also contains balanced nutrients that are required for brain development, growth and a healthy immune system that act against viruses, bacteria and parasites since an infant's immune system is not fully developed until age of 2 years, human milk provides a distinct advantages over formula. Breast Feeding should commence as soon as possible after giving birth and every 1 to 3 hours per 24 hours (8-12 times/24 hours) Babies should be breast fed exclusively for the 6 months.

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Breast milk has important ingredients that are not found in any infant formula, to build baby's immune system. Breast milk changes from feed to suit each baby's unique needs, making the perfect food to promote healthy growth and development. Breast milk is more easily digested than any infant formula. Breast milk fed babies are rarely constipated and are less likely to get diarrhoea. Breast milk has no waste products and leaves no carbon foot print. Breast milk fed babies have low risk of gastrointestinal illness, allergies, asthma, Diabetes, obesity, some childhood cancer, Respiratory tract infection, Urinary Tract infection, SIDS (cot death). The uniqueness and precious nature of breast milk is enhanced by the fact that it is asset given by nature and has no price. The vital components for the infants in tropical countries are breast feeding and avoidance of infections as we know so many advantages of breast feeding it is easily digestible, protecting against infections.

It is readily available; it contains lactoferin which hinders growth of *E. coli*. Studies show that 80% of infants growing healthy are those who receive breast feeds (Semin Pennato, 2009). Many new mothers do not always experience the instantly in – mother – love emotions. Bonding is gradually unfolding experience that can take hours, days, week or even months to develop. Bonding makes parents to shower their baby with love and affection and to protect and nourish the little one. A study has discovered that the action of a baby sucking actually changes how the mother's brain behaves. This results in a massive rush of the 'love hormone' oxytocin in women's brain. The release of the chemical in massive surges enhance a mothers feeling of trust, love and affection (Berkeley, 2011). The benefits of breast feeding for the health and wellbeing of the mother and baby are well documented, WHO recommends early initiation of breast feeding. A recent trial has shown that early initiation of breast feeding could reduce neonatal mortality by 22%. In developing countries alone early initiation of breast feeding could save as many as 1.45 million lives each year by reducing deaths mainly due to diarrhoeal disorders and lower respiratory tract infection in children (Betty, 1998). In South Asia 24-26% of babies born in Bangladesh, India and Pakistan are breast feeding within first hour of birth, whereas the corresponding rate of Sri Lanka 75% (Cunningham, Leveno, Bloom and Spong, 2010).

UNICEF reports that one in two babies worldwide are not breastfed within the recommended first two hours of birth, and not getting the nutrients they need, which increases their chances of death by a whopping 80%. This news—and the realization that something needs to change on a global level.
"Making babies wait too long for the first critical contact with their mother outside the womb decreases the newborn's chances of survival, limits milk supply and reduces the chances of exclusive breastfeeding," France Bégin, UNICEF Senior Nutrition Adviser, said in a news release. "If all babies are fed nothing but breast milk from the moment they are born until they are six months old, over 800,000 lives would be saved every year". "Breast milk is a baby's first vaccine, the first and best protection they have against illness and disease," Bégin says. "With newborns accounting for nearly half of all deaths of children under 5, early breastfeeding can make the difference between life and death."

So many studies gave information about the use of herbs and essentials mainly almond oil in many diseases. Also almond oil helps to promote milk secretions. Almond oil contains rich concentration of Oleic and liolenic essential fatty acids. Almond oil rich in Galectogogues interact with the dopamine system in such a way to increase the production of prolactin; specifically, by blocking the Dopamine 2receptor. There is some evidence to suggest that mothers who are unable to meet their infants' breastfeeding needs may benefit from galactogogues. Galactagogues may be considered when non-pharmacologic interventions are found to be insufficient. Most of the studies were done on almond oil on promotion of breast milk secretions studies found that massaging with almond oil helps in promotion of breast milk secretions. Studies found that massaging with almond oil two times a day gives good results on promotion of breast milk (Bergmann, 2010).

statement of the problem: "An experimental study to evaluate the effectiveness of application of almond oil massage on breast feeding among postnatal mothers undergone LSCS at MGMCRI Puducherry"

Objectives

- To assess the breast milk secretion during pre-test among postnatal mothers.
- To evaluate the effectiveness of almond oil massage on breast feeding during post-test among postnatal mothers.
- To find out the association between the breast milk secretion and the selected demographic variables of postnatal mothers.

Research hypotheses

H1: There will be an increase in the secretion of breast milk after application of almond oil in postnatal mothers.

MATERIALS AND METHODS

Methodology: Experimental Research Design group pre-test post-test design and 60 mothers Undergone LSCS were selected using simple random sampling technique-lottery method was adopted for this study.

Criteria for sample selection

Inclusion Criteria: Post-natal mothers underwent LSCS and admitted in postnatal ward giving breast feeding to their babies and willing to participate.

Exclusion Criteria: Post-natal mothers whose babies is in NICU and Mothers, who are allergic to almond oil.

Development and description of tool

The tool was developed based on review of literature, opinion from experts in the field of medical and nursing. The following steps were undertaken to prepare the final tool

The tool consists of two sections:

Part A: consists of demographic variables which include Age, Family income, Religion, Diet pattern, Educational status, Occupation, Gravida, and Para.

Part B: Unicef based breast feeding assessment tool

Validity and reliability: Validity is the most important simple methodological criteria for evaluating any measuring instrument. Validity reflects how accurately the measures yield information about the true or real variable being studied. Reliability as "the consistency with which an instrument measures the attribute". An instrument is said to be reliable if its measures accurately reflect the true score of the attribute under investigation. Reliability coefficients higher than 0.70 are often considered satisfactory, but coefficients greater than 0.80 are far preferable. Polit et al. (2007)

Reliability of the tool: The researcher used to test retest method (Karl Pearson Reliability Formula) to assess the reliability of the tool. The overall reliability score obtained was r = 0.82.

Part –B. Unicef based breast feeding assessment tool

	Characteristics	Score 1	Score 2	Score 3	Score 4	Score 5
1	Urine Output (Wet Napies) 1st Day	No Napkin Change	1 Napkin	2 Napkin	3 Napkin	More Than 4 Napkin
	Urine Output (Wet Napies) 5th Day	1 - 2 Napkin Change	3 Napkin	4 Napkin	5 Napkin	More Than 5 Napkin
2	Appearance And Frequency of Stools (1st Day)	Nil	5 Rupees Coin Size	1 Rupees Coin Size	2 Rupees Coin Size	10 Rupees Coin Size
	Appearance And Frequency of Stools (5th Day)	Nil	1 Time	2 Time	3 Time	More Than 3 Times
3	Weight Loss	More Than 12 %	More Than 11%	More Than 10%	More Than 9%	Less Than 8 %
4	Number Of Feeds	Less Than 3 Times	3 – 4 Times	5 – 6 Times	7 – 8 Times	9 – 10 Times
5	Sucking Pattern During Feed	No Sucking	Noisy Feeding	Slow Sucking	Intermittent Sucking	Rapid Sucking
6	Length Of Feed	Less Than 5 Minutes	5 Minutes	10 Minutes	20 Minutes	30 Minutes
7	End Of The Feed	Baby Does Not Release Spontaneously	Intermittent Release	Immediate Release	Late Release	Baby Leaves Breast Spontaneously
8	Offer Of 2nd Breast	Not Fed In 2nd Breast	Poor Sucking	Slow Sucking	Intermittent Sucking	According To Appetite Takes Good Sucking
9	Baby's Behaviour During And After Feed	Vigorous Cry	Irritable Cry	Intermittent Cry	Weak Cry	Baby Calm And Relaxed
10	Shape Of Nipple After Feeds	Altered	Flat	Inverted	Slightly Elongated	Same Shape, No Change
11	Mother's Report On Her Breasts And Nipples	Damaged / Sore Nipple	Engorgement	Mild Pain	Slight Discomfort	Comfortable
12	Sleep	Sleep with irritable cry	Intermittent sleep	After feed sleeps up to 1hour	After feed sleeps up to 2 hours	After feed sleeps up to 3 hours
13	Perceived Breast feeling of mother in feeding	Could not find any change	Unsatisfied breast fullness	Feeling breast fullness on either side	Feeling breast fullness	Feeling Breast fullness before feeding and empty after feeding

Score:
13-26: Poor
27-39: Fair
40-52: Good
53-65: Very Good.

Study Results

Distribution of demographic variables of postnatal mothers underwent lscs

S.No	Demographic Variables	Experimental Group (30)		Control Group (30)	
		n	%	*n*	%
1.	Age (in years)				
	• 18-25 years	17	56.7	14	46.7
	• 25-35 years	12	40.0	15	50.0
	• 35-45 years	1	3.3	1	3.3
2.	Family income Per Month				
	• <Rs. 5000	5	16.7	9	30.0
	• Rs. 5001 to 10,000	15	50.0	14	46.7
	• Rs. 10,001 to 15,000	2	6.7	4	13.3
	• >Rs. 15,000	8	26.7	3	10.0
3.	Religion				
	• Hindu	26	86.7	27	90.0
	• Christian	0	0	2	6.7
	• Muslim	4	13.3	1	3.3
	• Others	0	0	0	0
4.	Diet Pattern				
	• Vegetarian	1	3.3	1	3.3
	• Non-Vegetarian	29	96.7	29	96.7
5.	Educational Status				
	• Non –Literate	0	0	0	0
	• Primary School	5	26.7	6	20.0
	• Higher secondary School	8	16.7	10	33.3
	• Graduate	17	56.7	14	46.7
6.	Occupation				
	• Unemployed	28	93.3	29	96.7
	• Daily Labour	0	0	0	0
	• Self employed	0	0	1	3.3
	• Employed	2	6.7	0	0
7.	Gravida				
	• Primi Gravida	7	23.3	11	36.7
	• Multi Gravida	23	76.7	19	63.3
8.	Para				
	• Primi Para	10	33.3	12	40.0
	• Multi para	20	66.7	18	60.0

Percentage distribution shows amount of breast milk secretion among post-natal mothers underwent LSCS in pre-test (*N* = 60)

Breast milk secretion	UNICEF score	Group				Total	
		Experimental Group		Control group			
		n	%	*n*	%	*n*	%
Pre-test	27-39:Fair	28	93.3	27	90.0	55	91.7
	40-52:Good	2	6.7	3	10.0	5	8.3

Percentage distribution of breast milk secretion among postnatal mothers underwent LSCS during pre-test

Breast milk secretion	UNICEF score	Group				Total	
		Experimental Group		Control group			
		n	%	*n*	%	*n*	%
post-test	40-52:Good	0	0	30	100	30	50
	53-65:Very Good	30	100	0	0	30	50

Effectiveness of almond oil massage on breast feeding among postnatal mothers underwent LSCS during pre-test and post-test

Test	Experimental (*n* = 30)		Control (*n* = 30)		't' test value	'p' value
	Mean	Standard Deviation (SD)	Mean	Standard Deviation (SD)		
Pre-test	35.13	3.037	34.43	4.446	0.712	0.480
Post-test	63.00	1.287	43.33	2.023	44.933	<0.0001*
't' test value	47.657		10.244			
'p' value	<0.0001*		<0.0001*			

Ethical consideration: Ethical considerations are vital to any research study because of the influence on the researcher's ability to acquire and retain participants. The sample selected for the present study was 60 post-natal women underwent LSCS was admitted in the post-natal ward of Mahatma Gandhi Medical College Research Institute and Hospital, Puducherry. The proposed study was conducted after the approval of the Institutional Human Ethical Committee. Permission were obtained from the concerned authorities. Informed consent were obtained from the mothers. Subjects had given the right to withdraw from the study at any time they want and assurance was given to the study subjects and parents that, the privacy and anonymity of the individual will be maintained confidentially.

Data collection procedure: The permission was obtained from institutional ethical committee and concerned authority to conduct the study. The study was carried out from 17/10/17 to 21/11/17. Post-natal mothers undergone LSCS and who fulfilled the inclusion criteria were selected by using simple random sampling technique – lottery method. 4 to 5 women were selected per day. The investigator introduced herself to the subjects and explained about the procedure. The post-natal mothers were given opportunity to clarify their doubts regarding the intervention. After obtaining the signature in the consent form, data was collected to assess the demographic variables and a pre-test was carried out to assess the effectiveness of breast feeding by using UNICEF based breast feeding assessment tool in both the groups. Almond oil massage was applied to experimental group and routine breast care was given to the control group.

Procedure of almond oil massage: After cleaning the breast 2 ml of almond oil applied over each breast by finger pads for a period of 5 minutes two times a day (morning and evening) by stroking, rubbing, kneading and manipulating the breast to stimulate milk production and the procedure was repeated for 5 days. On 5th day post-test was conducted. Routine breast care was given for control group.

Plan for data analysis: The Researcher used Descriptive statistics which include frequency, percentage and mean, medium and standard deviation to assess the demographic variables of postnatal mothers underwent LSCS. Inferential statistics such as Cochrane's test and Wilcoxon Signed Rank test and Mann-Whitney test was used to compare the effectiveness of pre and post-test assessment. Chi-square test and Mann-Whitney and Kruskal Wallis test was done to find out the association between the breast milk secretions of breast feeding with selected demographic variables.

The First objective was to assess the breast milk secretion during pre-test among postnatal mothers: The present study findings revealed the frequency distribution of breast milk secretion in pre-test among 30 mothers of experimental group 93.3% (28) mothers had fair milk secretion (UNICEF score 27-39) 6.7% (2) mothers had Good milk secretion (UNICEF score 40-52),in control group 90.0% (27) mothers had fair milk secretion (UNICEF score 27-39), and 10.0% (3) mothers had good milk secretion (UNICEF score 40–52).

The second objective was to evaluate the effectiveness of almond oil massage on breast feeding during post-test among postnatal mothers: The present study revealed that in post-test among experimental group 30 mothers (100%) had very good milk secretion (UNICEF score 53–65) and in control group 30 mothers (100%) had good milk secretion (UNICEF score 40–52).

The third objective was to find out the association between the volume of breast feeding and the selected demographic variables of postnatal mothers: The present study findings revealed that there is no significant association between the volume of breast feeding and the selected demographic variables like age, family income per month, religion, diet pattern, educational status, occupation, gravida, and para.

DISCUSSION

- Among 60 post-natal mothers majority (31) mothers between the age group of 18–27 years.
- The frequency distribution of breast milk secretion in pre-test among 30 mothers of experimental group 93.3% (28) mothers had fair milk secretion (UNICEF

score 27–39) 6.7% (2) mothers had Good milk secretion (UNICEF score 40–52), in control group 90.0% (27) mothers had fair milk secretion (UNICEF score 27–39), and 10.0% (3) mothers had good milk secretion (UNICEF score 40–52) (Table 2, Figure 11).

- The frequency distribution of breast milk secretion among postnatal mothers underwent LSCS in post-test. In post-test among experimental group 30 mothers (100%) had very good milk secretion (UNICEF score 53–65) and in control group 30 mothers (100%) had good milk secretion (UNICEF score 40–52) (Table 3, Figure 12).
- The effectiveness of breast feeding among postnatal mothers underwent LSCS between experimental and control group in pre-test and post-test. In pre-test, the mean and SD value of experimental and control groups were 35.13, 34.43 and 3.037, 4.446, respectively.

In post-test the mean and SD values of experimental and control groups were 63.00, 43.33, and 1.287, 2.023, respectively. The obtained 't'test value for experimental group 47.657. 'p' value <0.0001*. The obtained 't'test value for control group 10.244 and 'p' value <0.0001*. While comparing experimental and control groups pre-test and post-test, In pre-test obtained 't' test value 0.712 and 'p' value 0.480 and post-test 't' value 44.933 and 'p' value <0.0001*.

- It was inferred that almond oil massage was effective in promoting breast feeding among post-natal mothers underwent LSCS and which can be effectively utilized as a non-pharmacological management for promotion of breast milk secretion. Hence the stated hypothesis H_1 was accepted.
- Regarding the association between the volume of breast feeding and the selected demographic variables. There is no significant association between the volume of breast feeding and the selected demographic variables like age, family income per month, religion, diet pattern, educational status, occupation, gravida, and para.

Recommendation

- The study can be replicated with a larger sample for better generalization.
- More studies can be conducted on effectiveness of almond oil massage in promoting breast feeding for mothers who undergone LSCS for alternative modalities to establish for promotion of breast feeding in maternity care.
- Nurse researcher can do studies related to other type of alternative therapies in promoting breast milk secretion.
- A study can be conducted by including more number of variables and at different geographic locations.
- The study can be conducted to compare the amount of breast milk secretion among postnatal mothers in experimental group and control group in MGMC and RI at Puducherry.

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