

**EFFECTIVENESS OF BREAST MASSAGE ON REDUCTION OF
BREAST ENGORGEMENT AMONG MOTHERS UNDERGONE
CAESAREAN SECTION ADMITTED IN
SELECTED HOSPITAL AT
TIRUNELVELI**



DISSERTATION SUBMITTED TO
THE TAMILNADU DR. M.G.R. MEDICAL UNIVERSITY, CHENNAI
IN PARTIAL FULFILMENT FOR THE DEGREE OF
MASTER OF SCIENCE IN NURSING
APRIL 2014

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BY

MS. P. KRISHNAVENI



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SRI.K.RAMACHANDRAN NAIDU COLLEGE OF NURSING

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A QUASI EXPERIMENTAL STUDY TO ASSESS THE EFFECTIVENESS OF BREAST MASSAGE ON REDUCTION OF BREAST ENGORGEMENT AMONG MOTHERS UNDERGONE CAESAREAN SECTION ADMITTED IN SELECTED HOSPITAL AT TIRUNELVELI.

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ABSTRACT

A Quasi experimental study to assess the effectiveness of breast massage on reduction of breast engorgement among Mothers undergone caesarean section admitted in Balaji and Nallamuthusamy Hospital. Study was conducted by **Ms.P.Krishnaveni** in partial fulfillment of the requirement for the degree of Master of Science in Nursing at the Sri.K.R.N College of Nursing, under the Tamilnadu Dr.M.G.R. Medical University.

The Objectives of the Study were,

- ❖ To assess the pre-test level of breast engorgement among mothers undergone caesarian section in experimental and control group.
- ❖ To find out the effectiveness of breast massage on breast engorgement among mothers undergone caesarian section in experimental group and control group.
- ❖ To compare the pre-test and post- test level of breast engorgement among mothers undergone caesarian section in experimental group and control group.
- ❖ To associate the post-test level of breast engorgement among mothers undergone caesarian section in experimental and control group with their selected demographic variables.(Age, education, occupation, gravid, post natal day, time when feeding started, duration and frequency of breast feeding).

The following Hypotheses were set for the study

Hypotheses were tested at 0.05 level

H₁: Mean post -test level of breast engorgement among mothers undergone caesarian section in experimental group was significantly lower than the mean post- test level of breast engorgement among mothers undergone caesarian section in control group.

H₂: There was a significant difference between mean pre-test and post- test level of breast engorgement among mothers undergone caesarian section in experimental and control group.

H₃: There was a significant association between post -test level of breast engorgement among mothers undergone caesarian section in experimental and control group with their selected demographic variables. (Age, education, post natal day, occupation, time when feeding started, gravida, duration and frequency of breast feeding)

The study was based on widenbach's helping art of clinical nursing model. The quantitative research approach was used. The study was conducted in Balaji and Nallamuthusamy hospital. The design adopted for the study was quasi experimental pre- test and post -test control group design to assess the effectiveness of breast massage on reduction of breast engorgement among mothers undergone caesarian section. Purposive sampling was used to select 60 mothers in selected hospitals among that 30 samples were allotted for experimental group, 30 samples for control group.

The data collection tools developed for generating the necessary data were standard scale was used to assess breast engorgement among mothers undergone caesarian section. The content validity of the tools was established by five clinical experts. The reliability of rating scale ($r=0.9$) was established by test retest technique method. The tool was found to be reliable. Pilot study was conducted to find out the feasibility of the study and to plan for data analysis. Data collection was done and the data obtained were analyzed in terms of both descriptive and inferential statistics.

The Significant Findings of the Study were:

1. There was no significant difference between mean pretest level of breast engorgement among mothers undergone caesarian section in experimental and control group ($t=0.86$, $p<0.05$).
2. There was a significant difference between mean post test level of breast engorgement among mothers undergone caesarian section in experimental and control group($t=4.88$, $p<0.05$).
3. There was a significant difference between mean pre and post test level of breast engorgement among mothers undergone caesarian section in experimental group($t=5.76$, $p<0.05$).
4. There was a no significant difference between mean pre and post test level of breast engorgement among mothers undergone caesarian section in control group($t=0.05$, $p<0.05$).
5. There was no significant association between post-test level of breast engorgement and experimental group demographic variables in age, education, occupation, postnatal day, feeding started, duration and frequency of feeding among mothers undergone caesarian section at ($p<0.05$) level.
6. There was a significant association between post-test level of breast engorgement and experimental group demographic variables in gravida, among mothers undergone caesarian section at ($p<0.05$) level.
7. There was no significant association of post-test level of breast engorgement and control group demographic variables in age, education, occupation, postnatal day, feeding started, duration and frequency of feeding among mothers undergone caesarian section at ($p<0.05$) level.

8. There was a significant association between post-test level of breast engorgement and control group demographic variables gravida, among mothers undergone caesarian section at ($p < 0.05$) level.

On the Basis of the Findings of the Study it is recommended that,

1. The similar study can be conducted with larger samples for better generalization.
2. A study can be conducted to assess the knowledge and practice of breast massage on level of breast engorgement among nurse midwives
3. A study can be conducted to assess the effectiveness of other alternative and complementary therapy like Gua sha therapy on reducing the level of breast engorgement.
4. A study can be conducted to assess the effectiveness of prevention of postnatal complications.

CONCLUSION

The present study was assessed the effectiveness of breast massage on reduction of breast engorgement among mothers undergone cesarean section. The results of the study concluded that breast massage was effective on reduction of breast engorgement among mothers undergone cesarean section. Breast massage is easy to practice, not painful and can enhance comfort to mother in the postnatal period, hence could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to assessment on reduction of level of breast engorgement by using standard breast engorgement scale following the intervention of breast massage. It can be given as non-pharmacological measures to reduce breast engorgement.

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CHAPTER I

INTRODUCTION

*“Breast milk is a gift that
Can only be given by giving oneself”*

Breast milk is the perfect food for normal neonate. It is the best gift a mother can give her baby. It contains all the nutrients for normal growth and development of a baby from the time of birth to first six months of life. Proper proportion and in a form that is easily digested and absorbed. Infants need to be given only exclusive breast feeding for the first six months of life. “If the winter comes can the spring be for behind.” Great poet says that the spring is followed by winter. That reveals that the joy after suffering. But labour does not come to end with child birth. The mothers do suffer much difficulty after childbirth.

Child birth is a process beautifully designed by nature and care following the birth of the baby also essential for maintenance of health of both mother and child. Child birth is a transcendent event with meaning far beyond the actual physiological process. The primiparous mother and the mother with inelastic breast are likely to be involved in breast complication. The factors like exaggerated normal venous and lymphatic enlargement of the breasts which precedes lactations in turn prevents escape of milk from the lacteal system leads to engorgement of breast (Marie, 2009)

A postnatal mother may leave the hospital as soon as she is medically stable, though the average for spontaneous vaginal delivery (SVD) is 3-4 days, and the average caesarean section postnatal stay is 6-8 days. The major focus of postpartum care is ensuring that the mother is healthy and capable of taking care of her newborn,

equipped with all the information she needs about breastfeeding, reproductive health and contraception, and the imminent life adjustment Post partum is the six weeks interval between the birth of the newborn and the return of reproductive organs to their normal non-pregnant state. . **(Bobake 2000)**

BACKGROUND OF THE STUDY

The rise in circulating prolactin acts upon the alveoli of the breast and stimulate milk production during the first 3-4 days of puerperium of the breast become heavy and engorged. The breast is hard, painful and sometime flushed. The areola will typically feel hard rather than soft, with tight skin that may appear shiny. The nipple may increase in diameter and become flat and taut, making a latch on challenging. **(Kelly mom 2012).**

The mammary gland is a milk producing gland which is composed largely of fat. It is a complex network of branching ducts & sac-like structures called lobules, which produce milk. Breast tissue fluid drains through the lymphatics into the lymph nodes located in the axilla and behind the sternum. Breast engorgement and nipple trauma are the complications associated with breastfeeding and considered as the most significant factors impacting on breastfeeding in the first weeks of motherhood. **(Lowen 2000)**

According to **Academy of breastfeeding medicine protocol committee, 2000**, Breast engorgement is defined as "the swelling and distension of the breasts, usually in the early days of initiation of lactation, caused by vascular dilation as well as the arrival of the early milk. The common causes of engorged breasts are other feeds given to baby before starting breastfeeding, delayed starting of breastfeeds, long

intervals between feeds, early removal of the baby from the breast while breast feeding, bottle-feeding and any other restrictions on breastfeeding.

Adequate management of engorgement is important for successful long-term lactation. The goal of treatment of breast engorgement is to relieve discomfort and control swelling. It includes, ice packs, an uplift support bra to minimize edema & frequent feeding. New breastfeeding mothers have several options for relieving normal postpartum breast engorgement such as breast massage, application of warmth, cold compresses, and hand expression or use of a breast pump. (**Journal of midwifery and women's health 2004**)

Breast massage is defined as the technique entails specific kneading, rubbing, and squeezing strokes applied to the soft tissue of the breast to increase lymph and blood flow. Before feeding, gentle massage toward the nipple allow some milk to flow out and help to soften the nipple for easier latch. During nursing, gentle compress and massaging will stimulate the letdown of milk. It is the easiest and cheapest method. Massage controls the blood circulation and tissue fluid circulation. For the problem of engorged breast which results into accumulation of milk in breast causing lumps, breast massage helps in reducing engorgement. (**Rowenabennet 2000**).

Breast massage is an easy, readily available and cost effective miraculous method to reduce the breast engorgement. It does not require elaborate preparation and instruction. It is an evidence based practice to control breast engorgement in post natal period.

NEED FOR THE STUDY

The breast is engorged if the mother is unable to feed the baby frequently or thoroughly enough to drain the breast in the first few days after birth. This is very important even though only a small amount of milk production right after delivery. Engorgement can make it difficult for the baby to breast feed effectively. If the breast feel hard, swollen, throbbing, lumpy, uncomfortably full or painful likely to be engorged. **(En espanol jan 2012)**

A descriptive study was conducted to identify the concerns of breastfeeding mothers during the first 20 weeks postpartum. The study concluded that proportion of mothers expressing concerns decreased over time, but some concerns such as breast engorgement & nipple tenderness persisted over the 20 weeks. Engorgement is a well known but poorly researched aspect. **(lowdermilk 2005)**

Global incidence of lactational mastitis vary as low as 2% and up to 50%. Mastitis is an inflammation of the breast that is most commonly caused by milk stasis rather than infection. Non-infectious mastitis can usually be resolved without the use of antibiotics. “Without effective removal of milk, non-infectious mastitis was likely to progress to infectious mastitis, and infectious mastitis to the formation of an abscess.” A recent study from Glasgow suggests an incidence of 18%. In approximately 3% of those with mastitis a breast abscess may result in complication. **(WHO 2007)**

As milk production increases, over-distention of the alveoli causes the milk-secreting cells to become flattened & occlude the capillary blood circulation surrounding the alveolar cells. Congestion contributes to edema & obstructs

lymphatic drainage of the breasts, stagnating the system that rid the breasts of toxins, bacteria, & leading to mastitis. In very severe cases can cause numbness or tingling of the hands from pressure on the nerves. In addition, a protein called the feedback inhibitor of lactation (FIL) accumulates in the mammary gland during milk stasis. It acts as a major trigger of apoptosis, that causes involution of the milk-secreting gland, collapse of the alveolar structures and the cessation of milk production. **(Kelly mom 2004)**

An interventional study was conducted on treatments for breast engorgement during lactation in andrapradesh. Total samples in this study were 64. The researcher concluded that although some interventions may be promising, there is not sufficient evidence from trials on any intervention to justify widespread implementation and more research is needed on treatments for this painful and distressing condition.

Global and Indian data exist to show that breast feeding promotes infant survival and growth, protects the infant against infections; the mother gets some protection from next pregnancy. However, women's are having one more advantage from the breast feeding. Complete breast feeding must prevent the mother from breast complication includes breast engorgement, inverted nipple etc. **(Medline plus 2005)**

A survey conducted about breast feeding pattern and breast complication in India. Around 27% women's initiate breast feeding within one hour after delivery. More than half of the women 57% give pre-lacteals to their new born. Study revealed that the early breast feeding will help to prevent the breast engorgement. Steps taken for the protection and promotion of breast-feeding from the 1970's have been effective **(surveys done by National Nutrition Monitoring Bureau 1, 2003).**

The theme of the world breastfeeding week (August 1-7), for the year 2010 is “Mother support, going for the gold.” The theme emphasizes that the mother child dyad is a single individual unit and appropriate support for the mother during pregnancy and lactation holds the key for optimal survival, growth and development of the child. **(Pubmed 2010)**

A retrospective survey of 34 breast feeding mothers in Ireland. From the data the following recommendations were suggested for further study. Class preparation for breast feeding with longer duration nursing. Breast massage & manual expression of colostrums during breast feeding prevents sore nipples and postpartum breast engorgement. **(Whitley N 2000).**

From the above studies and statistical data, it is clear that breast engorgement occurs in 80 % of post partum mothers and if we ignore, it can develop into mastitis and breast abscess. So there is a need to conduct this study.

So the investigator felt that this study need to be conducted to assess the effectiveness of breast massage on reduction of breast engorgement among mothers undergone caesarean section admitted in hospital. The investigator being a nurse interested in non pharmacological measures. The expert in the field and many researchers has given idea about breast massage on reduction of breast engorgement during post natal days. Therefore the researcher interested in study to evaluate the effectiveness of breast massage on reduction of breast engorgement among mothers undergone caesarean section admitted in selected hospital at Thirunelveli district.

STATEMENT OF PROBLEM:

“A Quasi experimental study to assess the effectiveness of breast massage on reduction of breast engorgement among mothers undergone caesarean section admitted in selected hospitals at Thirunelveli”

OBJECTIVES OF THE STUDY:

1. To assess the pre-test level of breast engorgement among mothers undergone caesarean section in experimental and control group.
2. To find out the effectiveness of breast engorgement among mothers undergone caesarean section in experimental group and control group.
3. To compare the pre-test and post- test level of breast engorgement among mothers undergone caesarean section mothers in experimental group and control group.
4. To associate the post-test level of breast engorgement among mothers undergone caesarean section in experimental and control group with their selected demographic variables. (Age, education, occupation, gravida, post natal day, time when feeding started, duration of feeding and frequency of breast feeding).

HYPOTHESES:

H₁: Mean post -test level of breast engorgement among mothers undergone caesarean section mothers in experimental group will be significantly lower than the mean post- test level of breast engorgement among mothers undergone caesarean section lower segment caesarean mothers in control group.

H₂: There will be a significant difference between mean pre-test and post- test level of breast engorgement among mothers undergone caesarean section in experimental and control group.

H₃: There will be a significant association between post -test level of breast engorgement among mothers undergone caesarean section mothers in experimental and control group with their selected demographic variables. (age, education, occupation, gravida, post natal day, time when feeding started, duration of feeding and frequency of breast feeding).

OPERATIONAL DEFINITIONS

Assess

It refers to the process of making a judgment or forming an opinion.

Effectiveness

It refers to the outcome of breast massage on reduction of breast engorgement among caesarean mothers who are having breast engorgement, reducing after intervention. This was assessed by using standard breast engorgement scale.

Breast massage

The term refers to the massaging breast gently prior to feeding by using the finger pads the kneading and circular motion massage from chest wall towards nipple for 10-15 minutes twice a day for 3 days. Clock wise massage for right side breast and Anti-clock wise massage for left engorged breast. Next starts rotary movement on the nipple to promote lymphatic flow and express the breast milk with the use of both hands. Repeat the breast massage after 2 hours.

Breast Engorgement

Breast engorgement refers to the redness, warmth, firmness, heaviness, tenderness and swelling in one or both breast.

Reduction

It means minimizing the breast engorgement from the previous stage after giving breast massage.

Caesarean Mother

Primi, second gravida & multi gravid mothers within the age group of 20 to 35 years, who undergone caesarean deliveries by incision through the lower abdominal wall and uterus, for the period of 3–5 post -operative days.

ASSUMPTIONS:

1. Breast engorgement may cause pain, tenderness, discomfort and heaviness to the mother's undergone caesarean section.
2. Breast massage may help to reduce the breast engorgement among mothers undergone caesarean section.
3. Breast engorgement is not given attention it may leads to mastitis & breast abscess leading to poor feeding of neonate.

DELIMITATIONS:

1. The Study was delimited to the lower segment caesarean section mother with breast engorgement.
2. The study was delimited to the age group of 20 to 35 years.
3. The study was delimited to those who are willing to participate.

4. The Study was delimited to 4 weeks period of time.
5. The study was delimited to 60 lower segment caesarean section mothers.

PROJECTED OUTCOME

1. Application of breast massage helps to reduce breast engorgement among cesarean section mothers.
2. The findings of the study motivate the nurses to provide breast massage on reduction of breast engorgement among cesarean section mothers.

CONCEPTUAL FRAMEWORK

Conceptual framework provides an understanding of the phenomenon of interest, philosophical views and reflects assumption. Conceptual framework used for this study is based on helping art of clinical nursing theory. Helping art theory was proposed in the year 1964 by Weidenbach.

The theory vision of nursing practice closely parallels the assessment, implementation, and evaluation of the nursing process. It consists of three components such as identification, ministration and validation. Identification refers to viewing the patient as an individual with unique experiences, and understanding the patient's perception of the condition. Ministration refers to provision of help by providing nursing care and validation refers to a collection of evidence that shows the patient's need fulfilled and that, the functional ability has been restored as a direct result of the nurse's actions.

This theoretical framework is used in the present study to evaluate the effect of breast massage on the level of breast engorgement among caesarean section mothers.

The components of helping art theory include:

1. Identification
2. Ministration
3. Validation

1. Identification

Identification begins with establishing a therapeutic relationship with mothers. In this phase, the researcher identifies mothers who undergone caesarean from medical records and collects the necessary demographic data. After collecting the baseline information, breast engorgement is assessed using Standardized breast engorgement scale.

2. Ministration

Ministration phase includes preparation of articles, preparation of mothers and administration of breast massage for 10 to 15 minutes in each breast twice a day for three days with the interval of 2 hours in experimental group. No intervention was given to control group. Assessment breast engorgement using standardized breast engorgement scale was done for mothers in both experimental group and control group.

3. Validation

In this phase, the researcher assess level of breast engorgement by standardized breast engorgement scale after breast massage and evaluates the effect of breast massage in experimental group and evaluation without breast massage in the control group.

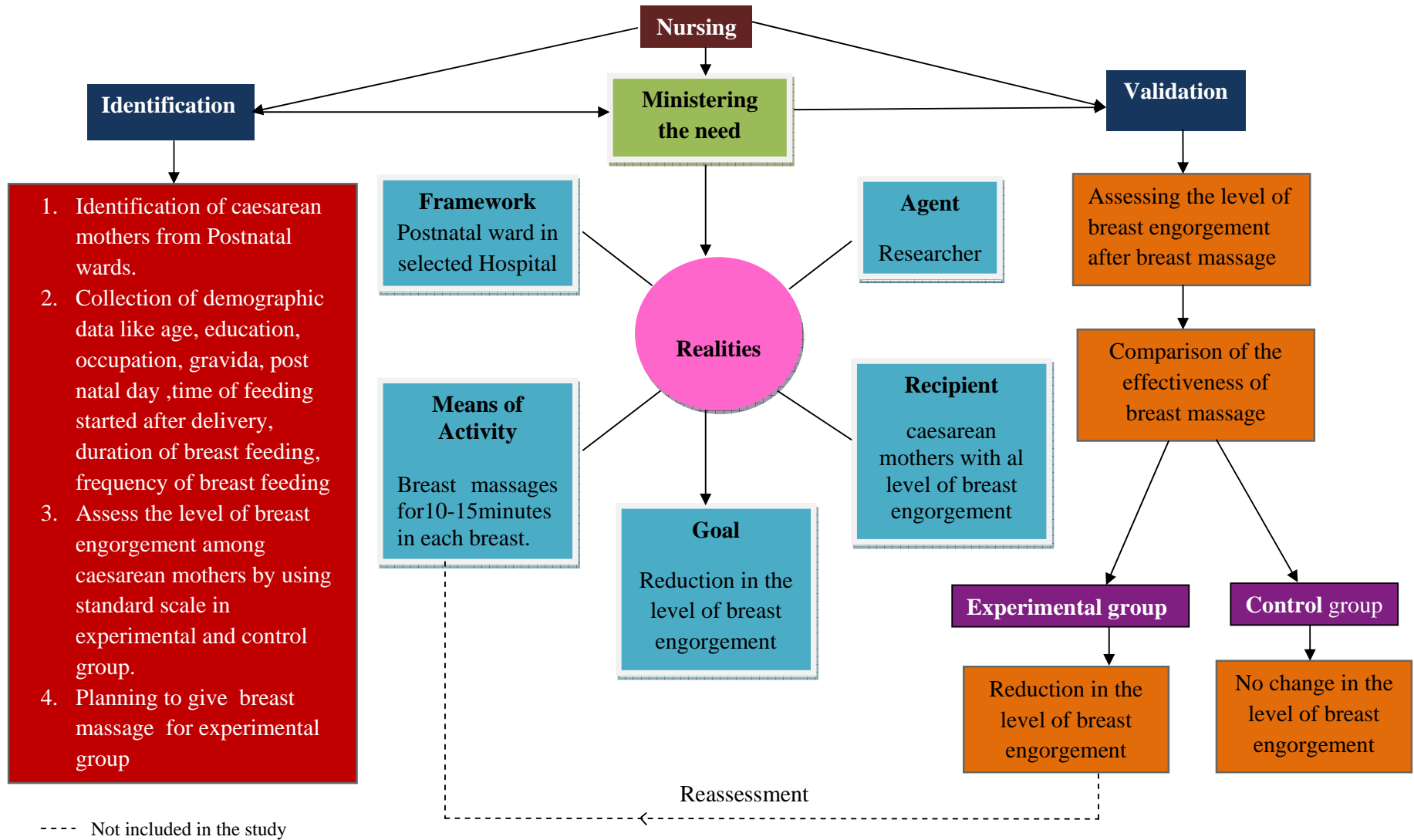


FIG 1.1.
CONCEPTUAL FRAMEWORK BASED ON MODIFIED WEIDENBACH'S HELPING ART CLINICAL NURSING THEORY (1964)

CHAPTER-II

REVIEW OF LITERATURE

A literature review involves the systematic identification, location, seeing and summary of written material that contains information of the research problem. **(Polit and Beck 2009)**. Thorough literature review will assist the researcher with the selection or development of the theoretical and methodological approaches to the problem. The researcher has reviewed various literature and research articles that are presented in this chapter. The literature review is discussed under the following headings.

Section-A: Literature related to prevalence of Breast engorgement

Section-B: Literature related to breast massage

Section-C: Literature related to effect of Breast massage on breast Engorgement.

SECTION-A: LITERATURE RELATED TO PREVENTION OF BREAST ENGORGEMENT

Evans et al., (2008) conducted “retrospective study to find the reason for breast engorgement” researcher selected 100 samples in Ireland. Samples in the study were selected by the convenience sampling technique. Study concluded that poor attachment leading to milk stasis and engorgement might be more likely to occur on the side that was more difficult to feed. It shows the frequency of breast engorgement in left or right breast has no significant difference was observed. 37 % - 52 % of case involves engorgement in the right breast and 38 % - 52 % of case involves engorgement in the left breast and 3 % - 12 % of cases involve bilateral engorgement.

Mallikarkuna (2008) conducted “a descriptive study on breast feeding problems in the first six months of life in rural Karnataka” Total sample of 420 mothers selected by interview method. Study showed that onset of breast feeding problem occurred in 31.7 % of women during first month of life, 76.9 % in the first week, 7.7 % in second week, 15.4 % in third week, insufficient milk was reported by 53.6 % while 23.1 % had problems like sore nipple, mastitis and engorgement

Ganguli, Dhavan, et al., (2008) conducted “a descriptive study on prevention and management of post natal breast complication among 600 post natal mothers at Allahabad”. Samples were selected randomly for the study. Study concluded that 20 % of mothers were found to have breast complication. Breast engorgement 43.3 % was the most common complication followed by cracked nipple 17.8 %, retracted nipple 10 %, cracked and sore nipple 8.33 %, cracked and retracted nipple 7.5 %, failing lactation 7.5 % and breast abscess 3.33 %.

Hill PD et al., (2004) conducted “a prospective study to describe breast engorgement during 1-14 postpartum days of 114 first and second times vaginal and cesarean delivery breast feeding mothers in south Australia”. Most mothers reported experiencing their most intense engorgement after hospital discharge. Previous breast feeding experience of the mother is more critical variable than parity in predicting engorgement. Second time breast feeding mothers experienced engorgement sooner and more severely than did first time breast feeding mothers, regardless of delivery method. Anticipatory guidance by the care provider is discussed in an effort to enhance the experience of the breast feeding dyad.

Humenick ss et al., (2004) conducted “a study on breast engorgement patterns and selected outcomes for 1- 14 days following birth in South Africa”. 120 breast feeding mothers rated their breast engorgement twice daily using a six point engorgement scale. Individual engorgement ratings were plotted by intensity over time to provide a visual display of each subject’s breast engorgement experience. Four distinct patterns of breast engorgement emerged. Mother experienced either a bell shaped pattern of minimal engorgement. Characteristics of mother and infants and feeding frequency were having relation to breast engorgement patterns.

Inch and Fisher (2003) conducted a correlation study between the breast engorgement and holding the baby by dominant hand. Selected the samples by randomization. Study concluded that no relationship was found between the dominant hand and the side affected but in 78 % of cases engorgement occurred in the opposite side to the preferred side.

May kay smith (2003) conducted “a study on breast feeding and breast engorgement” has stated that breast engorgement is associated with maternal discomfort, difficulty with latch on which lead to plugged ducts and mastitis. He also reported that engorgement is most common during first week of breast feeding and occur as a result of delayed, infrequent or interrupted removal of breast milk from the breast. While breast fullness is normal from the second to fourth day after birth, this normal condition is caused by congestion and swelling of breast tissue as blood and other fluids begin to accumulate along with increased milk volume in the alveoli as milk production begins.

Foxman (2003) conducted “a descriptive study on occurrence of breast engorgement, and medical management among 946 breast feeding women in United States” Sampling technique used in this study was simple random sampling. Study revealed that, incidence of breast engorgement was 56%-67%. The study concluded that, the risk of engorgement was higher among women who had breast fed previously.

Yadav (2003) conducted “a study on breast feeding practices and problems related to breast feeding among 327 rural women in India.”The researcher adopted a randomization to select the samples. Study revealed that about one quarter of mothers had lactation problem. The study found that 28.4% had initial sucking problem, 8.6% had sore nipple, 18.6% had engorgement, and 9.8% had mastitis and engorgement.

Subbiah (2003) conducted “a descriptive study to assess the knowledge, attitude, practice and problems of post natal mother regarding breast feeding among 100 postnatal mothers in Chennai” Randomization was done to select the samples. Study showed that 65% of population knew how to prevent breast engorgement, 56% remarked that frequent sucking is essential to prevent breast engorgement 76% of population knew the measures to get relief from breast engorgement, 59% opined that manual expression will relieve engorgement, 12% knew hot fomentation will relieve breast engorgement.

Marsha walker et al., (2006) conducted “a study on preventive strategies for breast engorgement” in Taiwan. The samples of 50 mothers were randomly selected from the maternity center. The data were analyzed by using chi square test. The study

revealed that the numerous preventive strategies were effective includes, pre natal expression of colostrums, prenatal breast massage, and post natal breast massage.

SECTION – B: LITERATURE RELATED TO THE TREATMENT FOR BREAST ENGORGEMENT

Roberts (2011) conducted “a comparative study to determine the effect of chilled cabbage leaves and chilled gel packs in reducing breast engorgement in post partum women in wisely guild hospital, Nigeria”. The study involves 34 lactating women with breast engorgement. Study subjects were selected by non probability purposive sampling technique. Chilled cabbage leaves on one breast and chilled gel packs on another for up to 8 hours. The pain level were compared before and after for both treatment. The study concluded that chilled cabbage leaves treatments was effective in reducing pain and breast engorgement and 68% obtained relief in two hours.

Chiu (2010) conducted “a study on effect of Gua-Sha therapy on breast engorgement”. The study was conducted among 54 postpartum women, the samples were assigned randomly into experimental and control group. The experimental group received Gua-Sha therapy and the control group were provided hot packs. Before the intervention, the severity of breast engorgement was assessed using breast engorgement scale and visual analogue scale. The Gua-Sha points used were ST16, ST17, ST18, SP17 and CV17. The intervention time was selected before feeding when the nipple is hard and distended. The breast engorgement was re-evaluated at 5 and 30 minutes following the intervention. Hot packs were administered to the control

group. The result suggested that Gua-Sha therapy can reduce breast engorgement. The study concluded that Gua-Sha therapy was superior to conventional hot application.

Boo (2009) conducted “a study to assess the effect of hand expression and manual pump on breast engorgement in North America.” Selected 64 breast engorgement mothers by purposive sampling technique. Spared the samples as experimental group and group equally. Experimental group received hand expression and control group received manual pump expression. The study concluded that manual expression was effective in the treatment of breast engorgement.

Katharyn Roberts (2008) conducted “a comparative study to identify the effectiveness of cabbage leaf extract with placebo in treating breast engorgement among 39 lactating women in Tumkur”. In this study 21 participants received cream containing cabbage leaf extract and 18 received placebo cream. The study concluded that two groups received equal relief in breast engorgement. Mothers perceived both creams to be equally effective.

Ruba (2008) conducted “a study to determine the effectiveness of cabbage leaves application to relieve breast engorgement at various Maternity Centres, Coimbatore. 24 post natal mothers with breast engorgement were taken as samples. Breast engorgement was assessed using check list and six point engorgement scale. The collected data were analyzed using paired ‘t’ test. The analysis based on six point engorgement scale documented that the mean score before application of cabbage leaves 4.067 was greater than mean score after application of cabbage leaves 1.2 with average mean difference 2.87. The calculated’ value 31.55 was found to be greater

than 't' table value 1.71. The study concluded that cabbage leaves application was effective in relieving breast engorgement.

Smrithi Arora (2007) was conducted a comparative study to identify the effectiveness of cabbage leaves versus hot and cold compress in treatment of breast engorgement among 60 postnatal mothers in the postnatal ward of the All India Institute of Medical Sciences, New Delhi. The control group was administered alternate hot and cold compress to the engorged breast and the mothers in the experimental group received cold cabbage leaves. Cabbage leaves were placed inside women's brassiere for 30 minutes, both treatments were performed three times a day and the engorgement was measured using Six Point Engorgement Scale. Hot and cold compress were found to be more effective in reducing pain due to engorgement.

Murata (2006) conducted "a study to compare the effect of protease complex a plant enzyme versus placebo in 59 women complaining painful and tender breast on the 3rd and 5th day after delivery in Spain." Samples in the study were selected by purposive sampling technique. The outcome measure includes improvement in pain and swelling and when the symptoms were assessed in the post test women in the experimental group received overall improvement in their symptoms.

Cotterman (2004) conducted a study on reverse pressure softening technique on softening of areola among 40 postnatal mothers in Nigeria. Purposive sampling technique was used in this study. The technique uses gentle positive pressure to soften an area (1-2 inches) near the areola surrounding the base of the nipple. Relieving the edema from the areola has been shown to improve the latch of the infant during

engorgement. Study revealed application of reverse pressure is effective to reduce the breast engorgement thereby increasing the softness of areola.

Robson (2004) conducted “a non blinded study to identify the effect of cold packs for breast engorgement with 88 women who had caesarean delivery and who developed symptoms of breast engorgement in selected hospitals of Tehran” . The samples were randomly selected to experimental and control group, the control group received routine care and the experimental group received cold packs. The result of the study shows that women in experimental group experienced reduction in pain intensity and the author reported a decrease in mean pain intensity score from 1.84 to 1.23 compared with control group from 1.80 to 1.79. The study concluded that application of cold pack was effective in treatment of breast engorgement.

Health and Nutrition (2004) conducted “a study to identify the efficacy of Whillestone Breast Expresser in treatment of breast engorgement. For the study 20 women were selected as samples. 45% of mother had flattened nipple before using the expresser. The average milk ejection time was 1.3 minute. The difference in engorgement before and after the intervention was obtained by using six point engorgement scale. All the participants stated that they had release of pain and swelling after using Whillestone Breast Expresser, many women stated that they received further relief after the baby had nursed and, 18 women stated that the expresser felt gentle and soothing.

Yvonne mesemer (2004) conducted “a study to test the effectiveness of milk removal as a method of reducing the discomfort of postpartum breast engorgement in non breast feeding women in women and children Hospital, Turkey”. The course of

breast involution was followed in 13 women. Minimal engorgement was experienced by 46% of the subject. A control group who experienced engorgement followed standard management practice was compared with experimental group who used a hand pump to relieve engorgement symptoms. The subjects in the experimental group experienced a shorter, more comfortable course of breast involution than the control group. The results suggested that mechanical removal of milk is an effective way to increase the comfort and decrease the symptom of engorgement in non breast feeding women.

Ingelman-Sundberg (2003) conducted “a study to determine the effect of subcutaneous oxytocin versus placebo in treatment of breast engorgement among 45 women in portuguese. The participants of the study were randomly selected and they received oxytocin for experimental group and placebo treatment for control. The main outcome of the study was duration of treatment; overall seven out of 45 women still had the symptoms of breast engorgement three days after starting the treatment. The study concluded that majority of the women in the treatment group had decreased signs and symptoms when compared with the control group.

SECTION-C: LITERATURE RELATED TO BREAST MASSAGE ON BREAST ENGORGEMENT

Snowden, HM et al., (2009) conducted “a randomized and quasi randomized controlled study in UK on the effect of any proposed intervention to relieve symptoms of breast engorgement among breast feeding women”. The study involves 424 women. Two different interventions were identified such as cabbage leaves and placebo; secondly used intervention is radiant heat and breast massage. Both

interventions were given to the groups alternatively. The study revealed that cabbage leaves and breast massage was found to be effective in reducing the breast engorgement.

Pruthi, s. et al., (2009) conducted “a prospective study to assess the value of massage therapy for patients in breast clinic with other forms of complementary and alternative medicine among patients with breast disease in Northern Ireland”. Surveys were mailed to 63 patients who had a breast abnormality or a recent diagnosis of breast cancer and received complimentary massage therapy at Mayo Clinic in Rochester. The survey reported that, all participants felt that massage therapy was effective in helping them to relax, reducing muscle tension, and feeling of wellness. Breast engorgement is a painful problem that can lead to premature weaning. Breast engorgement occurs in 72%-85% of women. Breast engorgement can occur at any time during lactation, when milk is not transformed from the breast.

Shiya Jacob (2010) conducted “a quasi experimental to assess the effectiveness of breast massage in the reduction of breast engorgement among post natal mothers admitted in agalkote.” The samples of the study were selected by purposive sampling technique. Sample size was 60. control group didn't received any treatment, experimental group received breast massage for twice a day for one day. By using unpaired 't' test the data were analyzed. Study concluded breast massage was effective in treating the breast engorgement.

Glover (2010) conducted “quasi experimental Study to evaluate the breast massage with warm moist heat on breast engorgement. Total samples of the study was 56, samples were selected by purposive sampling technique. Researcher equally

divided the samples in to two groups. Warm, moist heat on the breast for few minutes help to increase milk flow, Use of heat for extended periods of time (over 5 minutes) may reduce swelling, massage was reduce the swelling, and help to drain the breast milk, Gentle breast massage and relaxation techniques may help to improve milk flow and reduce engorgement.

Kochuthresia PV (2009) conducted “a study on nursing intervention to post natal mothers with breast engorgement”. The study was conducted in a 25 bedded postnatal ward in Kuppusamy Naidu memorial Hospital, Coimbatore. The postnatal mothers were transferred to this ward on the first day of their delivery in case of normally delivered and on the second and third day in case of lower segment caesarean section. In that finding 64% of postnatal mothers developed breast engorgement. The study showed that timely appropriate nursing intervention like breast massage and use of vacuum bottle in the expression of milk from the engorged breast was found more effective and provides expected results.

Randazen (2006) conducted “a study to assess effectiveness of breast massage on reduction of post natal breast complication in Bangladesh” .Breast massage was given to 56% of mothers who suffered from different types of breast problems like engorged breast, sore nipple and flat nipple. For improving the lactation and decreasing the breast engorgement they were given breast massage. Researcher concluded that breast massage is effective to reduce the breast complication.

Bowles (2004) conducted” a double blind randomized clinical trial to identify the effect of hot application and breast massage in relieving the breast engorgement” among 100 postnatal mothers in the city of Amman. They samples were divided in to

two groups. Experimental groups receive breast massage and control group receive hot application. The study concluded that, application of breast massage was effective in reducing the breast engorgement.

Storr, GB (2003) conducted “a study to identify an effective preparation method for breast feeding and to develop measurements tool for nipple tenderness and breast engorgement for use in a clinical setting in Taiwan”. 25 subjects served as their own controls by preparing the nipple and massaging one breasts either the left or right but not the other breast or nipple. Nipple tenderness and breast engorgement were recorded on 5 point scale analysis of the data revealed that tenderness and engorgement was decreased in the preparation method for breast feeding.

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CHAPTER III

RESEARCH METHODOLOGY

Research methodology refers to the techniques used to structure a study and together and analyze information in a systemic fashion. **(Polite andHungler, 2008).**

Methodology includes the steps, procedures and strategies for gathering and analyzing the data in the research investigation.

This chapter deals with the methodology adopted in this study. It includes Research approach, Research design, Variables, Settings, Population, and Sample, Criteria for sample selection, Sample size, Sampling technique, development and description of tools, Content validity, Reliability, Pilot study, data collection procedure and plan for data analysis.

RESEARCH APPROACH

Quantitative research approach was used in this study.

RESEARCH DESIGN

The research design adopted in this study was quasi experimental pre- test and post -test control group design.

GROUPS	PRE TEST	INTERVENTION	POST TEST
Experimental group	O ₁	X	O ₂
Control group	O ₁	-	O ₂

Figure 2: Schematic representation of quasi experimental design.

Key:

X – Breast massage.

O₁ – Pre assessment level of breast engorgement among control group and experimental group.

O₂ – Post test level of breast engorgement among control group and experimental group.

VARIABLES**Dependent variable:**

Breast engorgement

Independent variable:

Breast massage

SETTING OF THE STUDY

The study was conducted in post operative ward of selected hospitals such as balaji hospital and nallamuthusamy hospital.

Balaji hospital is a 100 bedded hospital situated at Tirunelveli .It comprises various functioning department like ante natal ward, post natal ward, labour ward, operation theater. It has separate new born resuscitation unit. Every month around 84 deliveries took place, out of which 48 deliveries normal and 36 deliveries are likely to be caesarean section. Distance from the college is 53 kilometers.

Nallamuthusamy hospital is a 100 bedded hospital. The hospital includes AN ward, PN ward, labour and gynaecological ward, ICU and surgical unit. The hospital has separate OT & new born resuscitation unit which functions round 'o' clock. Around 74 deliveries are conducted per month. In that approximately 40 mothers had

under gone normal delivery and 34 mothers had undergone caesaran section. The distance from the college is 13 kilometers. Availability of samples was the main reason to choose these settings to conduct the study.

POPULATION

Population is the entire aggregation of cases that meet designated set of criteria. (Polit & Beck). The study population consists of mothers who were undergone caesarean section.

SAMPLE

The study samples consist of mothers who underwent caeseran section and admitted in selected hospital post natal ward with fulfilling the inclusive criteria.

SAMPLE SIZE

Sample size was 60 caesarean mothers. Out of which 30 of them were allotted to the experimental group and 30 of them in the control group.

SAMPLING TECHNIQUE

The sampling technique used for this study was non probability purposive sampling technique. Balaji hospital was selected for experimental group. Nallamuthusamy hospital was selected for control group. During the data collection period approximately 2-3 mothers per day were underwent caesarean section. The researcher visited the selected hospitals daily to identify the samples. The researcher enquired with labour ward staff and AN ward staff and verify with the admission register every day for caesarean section. Purposive sampling technique was used to draw the samples. The caesarean mothers with mild, moderate and severe breast

engorgement, on 3rd to 5th post operative days who fulfilled the inclusion criteria were included in this study. Every day 1-2 mothers were selected. Totally 60 caesarian mothers were selected. Out of 60 mothers 30 of them were in experimental group & 30 of them were in control group.

CRITERIA FOR SAMPLE SELECTION

Inclusive Criteria

1. Caesarian mothers with mild, moderate, and severe breast engorgement.
2. Caesarian mothers in the age group of 20 to 35.
3. Caesarian section mothers on 3rd to 5th post- operative days.
4. Caesarian section mothers were willing to participate.

Exclusive Criteria

1. Caesarian mothers receiving lactation suppressants for breast engorgement.
2. Caesarians mothers with mastitis, breast abscess, retracted nipple, bleeding or cracked nipples.
3. Caesarian mother, with any systemic illness & obstetrical complication.
4. Caesarean mother who are taking alternative therapy for breast engorgement.

DEVELOPMENT AND DISCRIPTION OF TOOLS

The tool has two sections. The tool constructed in this study was divided as follows,

SECTION –A

The baseline data profile comprised of age, education, occupation, gravida, post natal day, time of feeding started after delivery, duration of breast feeding,

frequency of breast feeding among mothers underwent caesarian section with breast engorgement.

SECTION –B: SIX - POINT ENGORGEMENT SCALE

The scale was formulated by Hill and Humenick (**Pamela.D.Hill and Sharron.S. Humenick**) in the year 1994. This is a standardized scale used to assess the severity of breast engorgement

Standardized tool consist of six criteria regarding breast engorgement. The criteria under appearance of breast includes, soft, no change in the breast, slight changes in the breast firm, beginning tender in the breast, firm tender, very firm and very tender.

SCORING PROCEDURE

SECTION –B

Assessing the level of breast engorgement among caesarian section mothers.

When the breast is soft, score 1 is given

When breast is having slight changes score 2 is given

When the breast is firm, non tender it carry score 3

When the breast is firm, beginning tenderness it carry score 4 is given

Firm, tender breast carry 5 score.

Very firm, very tender breast carry 6 score.

Interpretation of score:

- Score 1 : Normal
- Score 2 and 3 : Mild engorgement

- Score 4 and 5 : Moderate engorgement
- Score 6 : Severe engorgement

DESCRIPTION OF INTERVENTION

Procedure

Step 1:

Select an appropriate place and provide privacy to the caeseran mothers. Before doing the intervention explains the procedure to the mother.

Step 2:

Wash hands before and after the procedure. Ask the mothers to lie down on the bed. At first expose the both breast assess the breast engorgement by using the standardized breast engorgement scale.

Step 3:

Make the fingers like pads by using the right hand and support the breast by left hand.

Step 4:

Give the soft, gentle, circular, kneading motion massage to the engorged breast. For right side engorged breast clock wise massage provided from center to periphery and for left side engorged breast anti clock wise massage from center to periphery for 10-15 minutes in each breast twice a day for 3 days. Duration between the both breast massage is 2 hours.

Step 5:

Next starts rotary movement on the nipple to promote lymphatic flow and express the breast milk with the use of both hands.

Step 6:

Advice the mother to feed the baby after the breast massage. Repeat the massage after the interval of 2 hours and continue this procedure for 3 days.

Step 7:

Finally wash hands and assess the breast for the level of engorgement by using the standardized breast engorgement tool. Record the procedure with date and time.

CONTENT VALIDITY

The content validity of the tool was established on the opinion of one medical expert in the field of obstetrics and gynecology and four nursing experts in the field of obstetric and gynecological nursing. Slight modifications were done as per the suggestion of the experts in the tool.

RELIABILITY

Reliability of the standard tool was tested by the investigator after pilot study. The reliability of the standard tool was determined by test-re test method. The reliability score was $r=0.9$. Hence the tool was considered highly reliable for proceeding the study.

PILOT STUDY

The pilot study was a trial run for major study. The tool was used for the pilot study to test the feasibility and practicability. The pilot study was conducted in Balaji Hospital, Thirunelveli district. A formal permission was obtained from the Director of the Balaji Hospital. The period for pilot study was one week from 29.08.2013 to 31.08.2013.

The investigator introduced her to the mothers and established rapport with the mothers. Six samples were selected for pilot study using purposive sampling technique. Data pertaining to demographic variables were collected by interview method. Investigator assessed pre test level of breast engorgement during post natal days by using the six point engorgement scale. Data collection was done in the same setting for a period of six days. The investigator selected six samples by using purposive method of sampling technique. Out of six samples three samples were allotted for experimental group, and three samples were allotted for control group. The investigator gave breast massage for the sample of experimental group. Control group mother received hospital routine care. At the end of the intervention, the post test level of breast engorgement was scored for both groups. The pilot study revealed that there was a highly significant difference between the post test level of breast engorgement among post natal mothers in experimental and control group at $p < 0.05$ level. The findings showed that breast massage was effective for breast engorgement in post natal mothers. It was feasible and practicable to conduct the main study. There was no modification made in the tool after the pilot study.

PROCEDURE FOR DATA COLLECTION

The researcher got formal permission from the Principal and research ethical committee of Sri K.R.N College of nursing. Balaji hospital and Nallamuthusamy hospital was selected for data collection. Data collection period was conducted for four consecutive weeks from 01.09.13 to 30.09.13. The investigator collected the data for the 6 days a week from Monday to Saturday and from 7 am to 5 pm.

During the data collection day the investigator selected two to three sample based on inclusive criteria and by using purposive sampling technique. The samples selected were mothers with fulfill the inclusive criteria during 3rd and 5th post natal day. The investigator established rapport with the mothers. They were assured that no physical or emotional harm would be done during the course of the study. The investigator was instructed about the benefits of breast massage to the mother. Data pertaining to the demographic variables were collected by interview method. Breast massage intervention was done for duration of 10 to 15 minutes to all samples in the experimental group. This intervention was repeated with the interval of 2 hours. For 3 days. Hospital routine intervention was given for each sample in control group.

Investigator assessed post test level of breast engorgement during 3rd to 6th post natal days by using six point engorgement scale for both mothers in experimental and control group. The same procedure followed for the consecutive weeks.

PLAN FOR DATA ANALYSIS

After data collection, data were organized, tabulated, summarized and analyzed. The data were analyzed according to objectives of the study by using both descriptive and inferential statistics.

Descriptive analysis

- ❖ Frequency and percentage distribution was used to analysis the demographic variables of the post natal mothers in experimental and control group.
- ❖ Frequency and percentage distribution was used to assess the pre and post test level of breast engorgement among caesarian mothers.
- ❖ Mean and standard deviation was used to assess the pre and post test level of breast massage on reduction of breast engorgement among caesarian mothers.

Inferential stastistics

- ❖ Paired t - Test was used to compare the pre and post test level of breast engorgement during 3rd to 5th post-operative day for both experimental and control group of caesarian mothers.
- ❖ Unpaired t- test was used to compare pre and post- test level of breast massage on reduction of breast engorgement between experimental group with breast massage and control group of caesarian mother.
- ❖ The Chi –Square was used to find out the association between level of breast engorgement among experimental and control group of caesarian mothers with their selected demographic variables.

PROTECTION OF HUMAN SUBJECT:

Ethical clearance was obtained from Institutional Ethical Committee (IEC) and the permission was obtained from the respective hospitals for data collection. Informed consent was obtained from the samples. The written consent was obtained from each participant before data collection. Assurance was given to the study participants regarding confidentiality of the data collected.

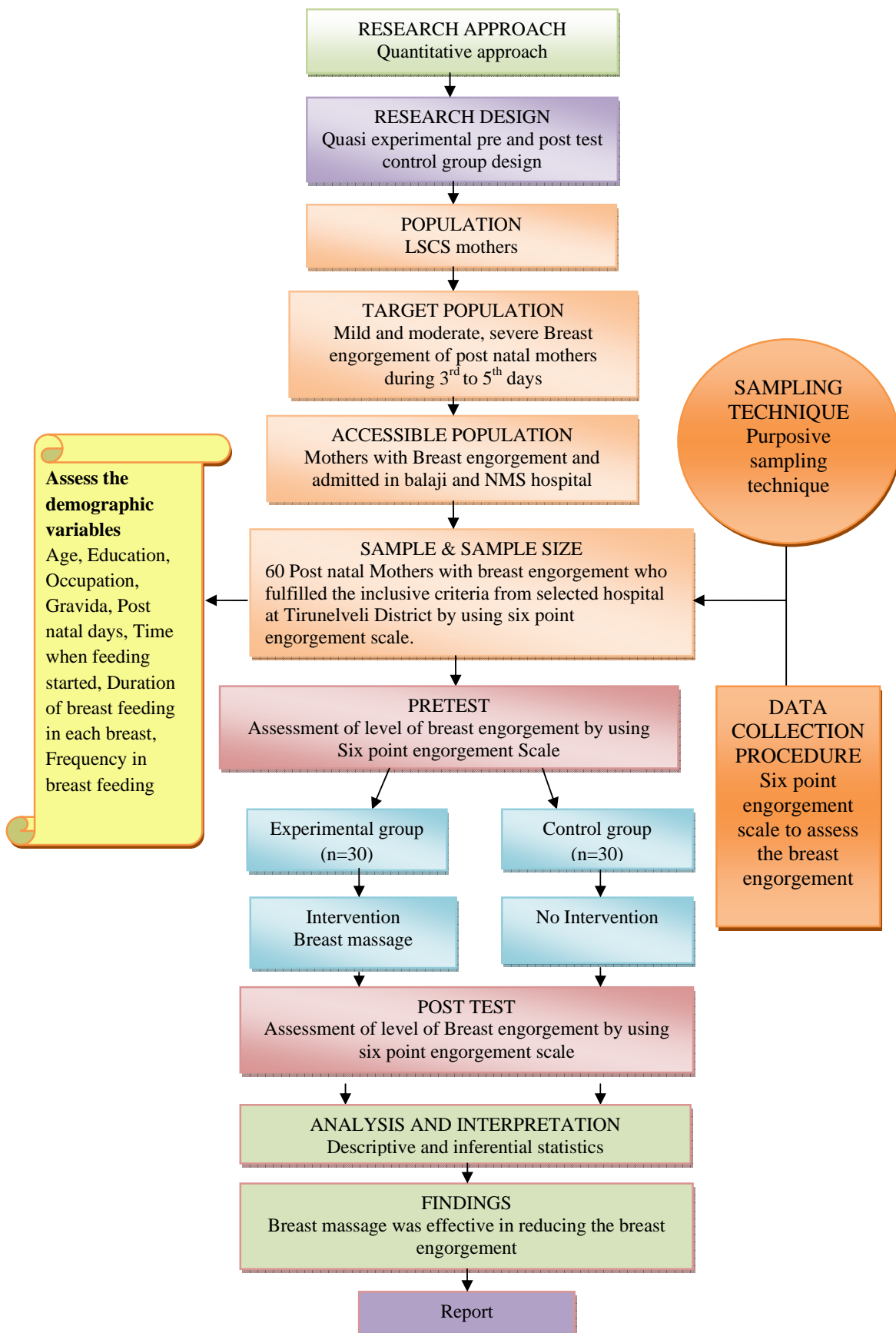


Figure 3: Schematic representation of research methodology

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data related to assess the effectiveness of breast massage on reduction of breast engorgement among Caesarean mothers admitted in selected hospitals at Tirunelveli.

Descriptive and inferential statistics were used for analyzing the data on the basis of the objectives of the study. The data has been tabulated and organized as follows.

ORGANIZATION OF DATA

Section A : Description of demographic variables among Caesarean mothers in experimental and control group.

- Frequency and percentage distribution of demographic variables of caesarean mothers.

Section B : Assessment on the level of breast engorgement among Caesarean mothers in experimental and control group.

- Assessment of post test level of breast engorgement among caesarean mothers in experimental and control group

Section C : Comparison of pre and post test level of breast engorgement among Caesarean mothers in experimental and control group.

- Comparison of mean and standard deviation of pre and post test level of breast engorgement among Caesarean mothers in experimental group.

- Comparison of mean and standard deviation of pre and post test level of breast engorgement among Caesarean mothers in control group.
- Comparison of mean and standard deviation of pretest level of breast engorgement among Caesarean mothers in experimental group and control group.
- Comparison of mean and standard deviation of post test level of breast engorgement among Caesarean mothers in experimental group and control group.

Section D : Association of post test level of breast engorgement among Caesarean mothers in experimental and control group with their selected demographic variables.

- Association of Post-test level of breast engorgement among Caesarean mothers in experimental group with their selected demographic Variables.
- Association of Post-test level of breast engorgement among Caesarean mothers in control Group with their selected demographic Variables.

SECTION-A:

**DESCRIPTION OF DEMOGRAPHIC VARIABLES AMONG
CAESAREAN MOTHERS IN EXPERIMENTAL AND CONTROL
GROUP**

Table-1: Frequency and Percentage Distribution of Demographic Variables among cesarean mothers in experimental and control group.

(N=60)

S.No	Demographic variables	Experimental group (n=30)		Control group (n=30)		Total (N=60)	
		f	%	f	%	f	%
1.	Age						
	<20 yrs	10	33.3	13	43.33	23	38.3
	20-30yrs	10	33.3	11	36.66	21	35
	>31yrs	10	33.3	6	20	16	26.6
2.	Educational status						
	Illiterate	10	33.3	7	23.33	17	28.3
	Primary	6	20	9	30	15	25
	Secondary	7	23.33	10	33.3	17	28.3
	Graduate	7	23.33	4	13.33	11	18.3
3.	Occupation						
	House wife	14	46.66	13	43.3	27	45
	Working	16	53.33	17	56.6	33	55

4.	Gravida						
	Primi	14	46.66	15	50	29	48.3
	Second	10	33.33	6	20	16	26.6
	Multi	6	20	9	30	15	25
5.	Postnatal day						
	3 rd	13	43.3	14	46.6	27	45
	4 th	10	33.33	10	33.33	20	33.3
	5 th	7	23.33	6	20	13	21.6
6.	Feeding started						
	1 hour	9	30	8	26.66	17	28.3
	1-2 hour	12	40	7	23.33	19	31.6
	3 hour	9	30	15	50	24	40
7.	Duration						
	0-10	12	40	11	36.66	23	38.6
	10-20	9	30	12	40	21	35
	20-30	9	30	7	23.33	16	26.6
8.	Frequency						
	<2 hour	16	53.33	19	63.33	35	58.3
	>2 hour	14	46.66	11	36.66	25	41.6

Table 1 describes about the frequency and percentage distribution of demographic variables of Caesarean mothers with respect to age, educational status, occupation, gravida, postnatal day, feeding started, duration, and frequency.

Out of the 60 mothers in the experimental group 10 (33.33%) of them were between <20years of age, 10 (33.33%) of them were between 20-30 years, 10 (33.33%) of them were between >31years.

In the control group 13 (43.3%) of them were between <20 years of age, 11 (36.6%) of them were between 20-30years of age, 6 (20%) of them were between >31yrs.

With regards to the educational status of the mothers in experimental group 10 (33.33%) of them were illiterate, 6 (20%) of them were completed their primary education, 7 (23.3%) of them were completed their secondary education, and 7 (23.33%) of them were completed their graduation.

In the control group 7 (23.33%) of them were illiterate, 9 (30%) of them were completed their primary education, 10 (33.3%) of them were completed their secondary education, and 4 (13.33%) of them were completed their graduation.

With regards to occupation in the experimental group 14 (46.6%) of them were house wife, 16 (53.33%) of them were working women.

In the control group 13 (43.3%) of them were house wife, 17 (56.6%) of them were working women.

With regards to gravida in the experimental group 14 (46.66%) of them were primi mothers, 10 (33.33%) of them were second gravida, 6 (20%) of them were multi gravida.

In the control group 15 (50%) of them were primi mothers, 6 (20%) of them were secondary, 9(30%) of them were multi gravida.

With regards to postnatal day in the experimental group 13(43.3%) of them are in 3rd day, 10(33.33%) of them are in 4th day, 7 (23.33%) of them were in 5th day.

In the control group 14 (46.6%) of them are in 3rd day, 10 (33.3%) of them are in 4th day, 6 (20%) of them are in 5th day.

With regards to feeding started in the experimental group 9 (30%) mothers started within 1 hour, 12(40%) mothers started within 1-2 hours,9 (30%) of them started within 3 hours.

In the control group 8 (26.66%) mothers started within 1 hour, 7(23.33%) mothers started within 1-2 hours, 15 (50%) of them started within 3 hours.

With regards to duration in the experimental group 12 (40%) of them were between 0-10, 9 (30%) of them were between 10-20, 9 (30%) of them were between 20-30.

In the control group 11 (36.6%) of them were between 0-10, 12 (40%) of them were second, 7(23.33%) of them were between 20-30.

With regards to frequency in the experimental group 16 (53.33%) of them were below <2 hour, 14 (46.66%) of them were >2 hour.

In the control group 19 (63.3%) of them were below < 2 hour, 11 (36.6%) of them were >2 hour.

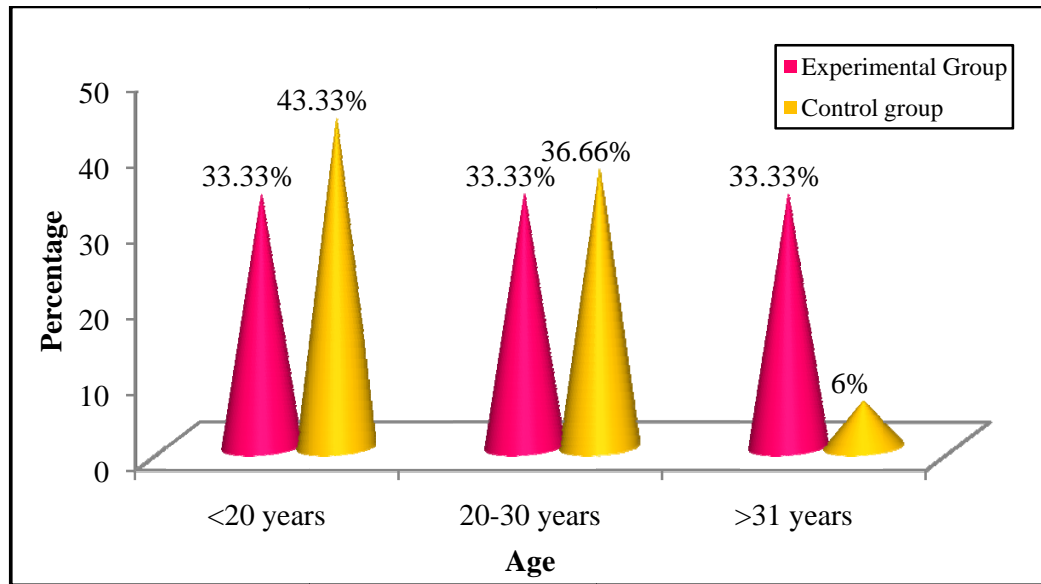


Figure-4: Percentage distribution of age among Caesarean mothers in experimental and control group.

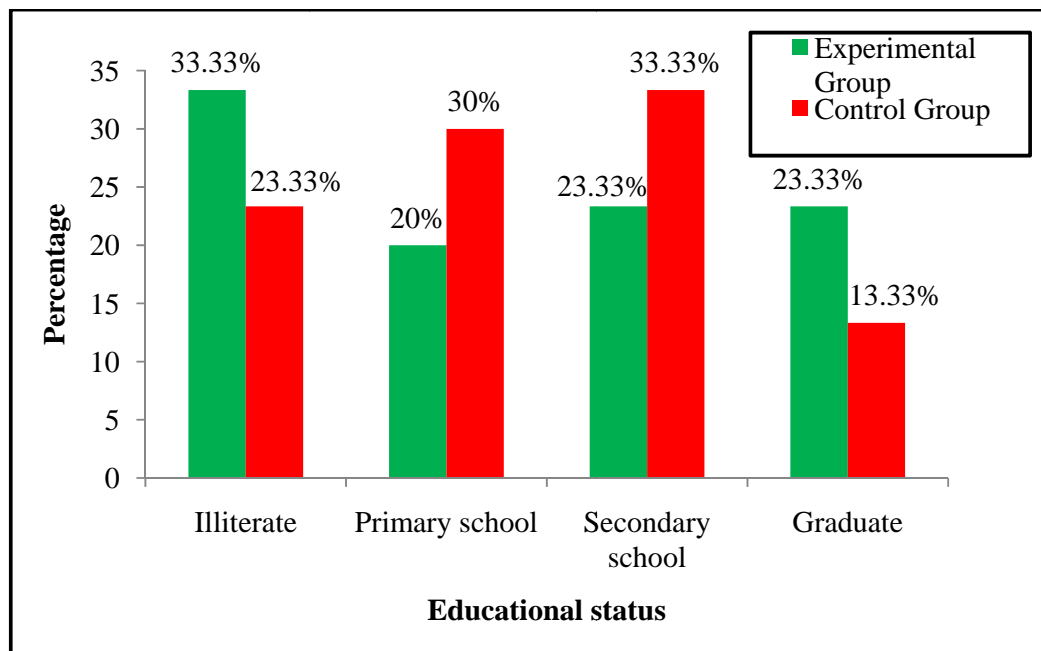


Figure-5: Percentage distribution of educational status among Caesarean mothers in experimental and control group.

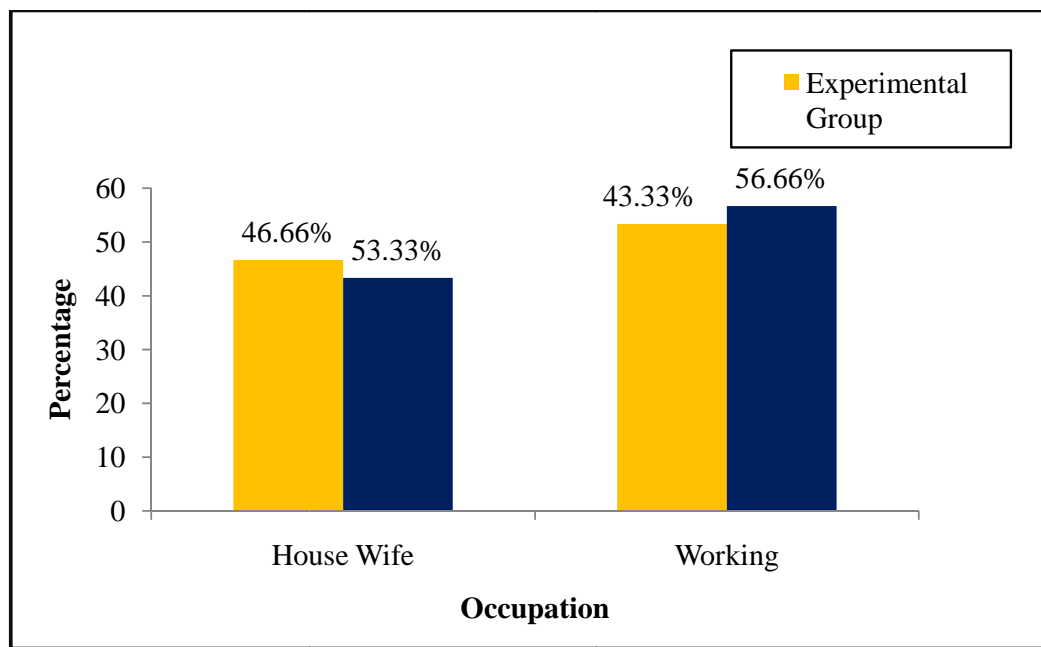


Figure-6: Percentage distribution of Occupation among Caesarean mothers in experimental and the control group.

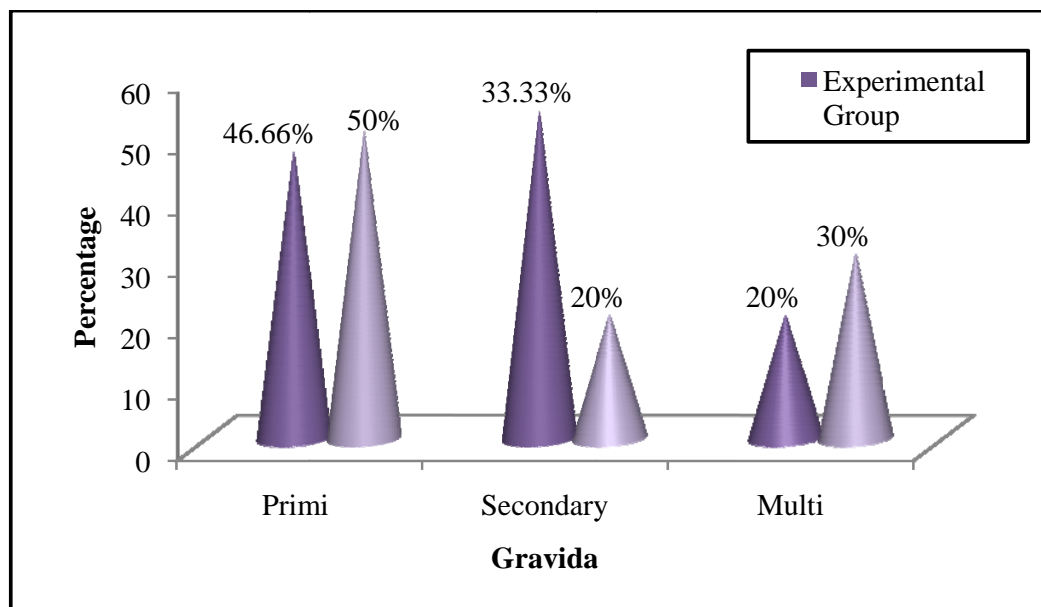


Figure-7: Percentage distribution of Gravida among Caesarean mothers in experimental and control group

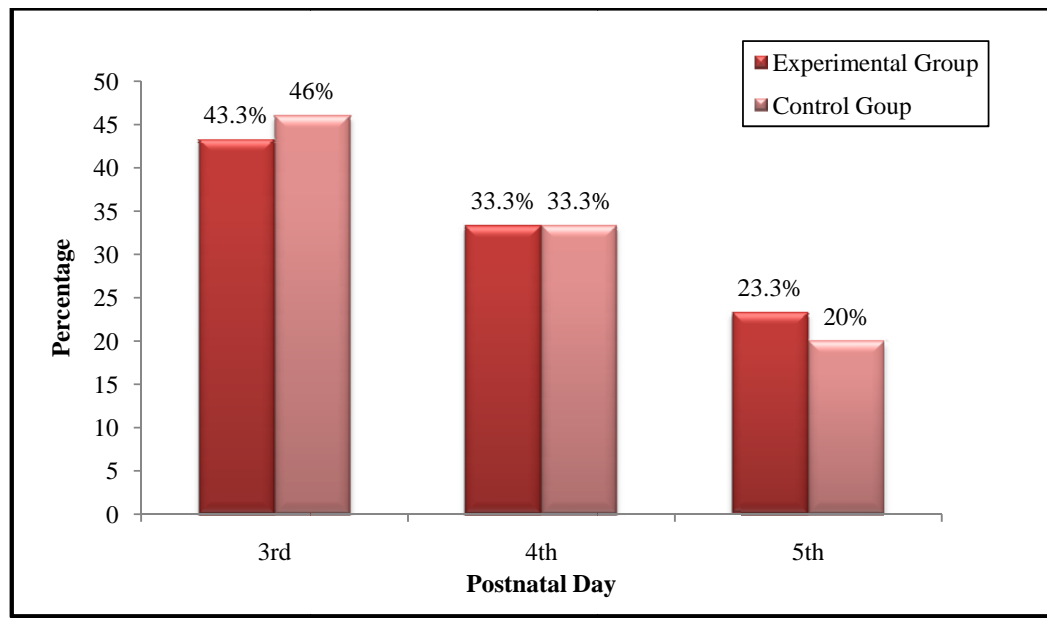


Figure-8: Percentage distribution of Postnatal Day among Caesarean mothers in the experimental and control group

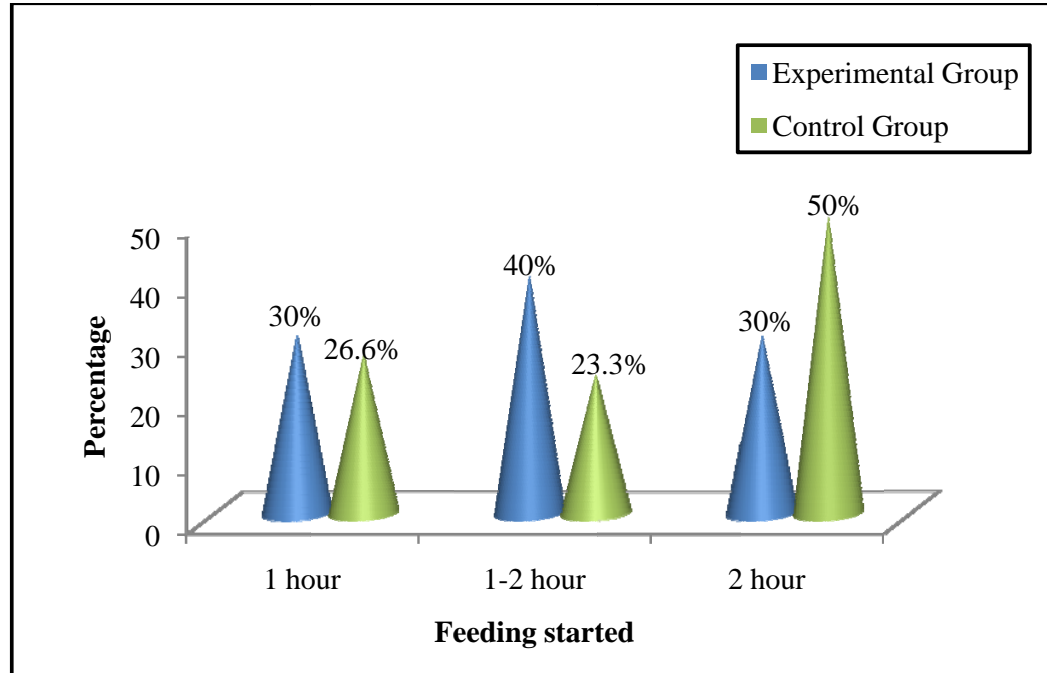


Figure-9: Percentage distribution of Feeding Started among Caesarean mothers in the experimental and control group

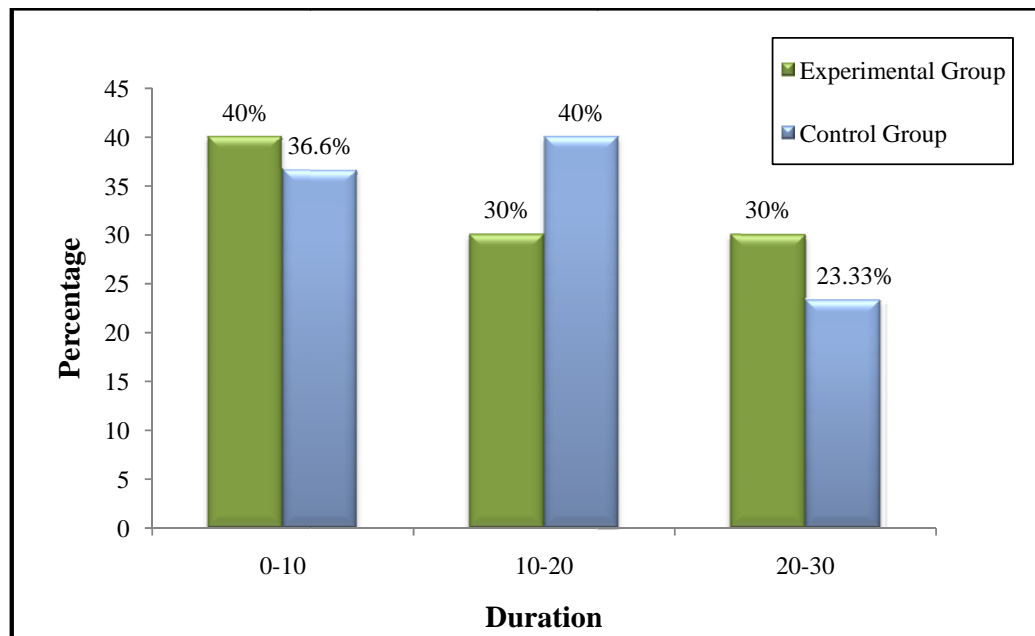


Figure-10: Percentage distribution of Duration among Caesarean mothers in the experimental and control group.

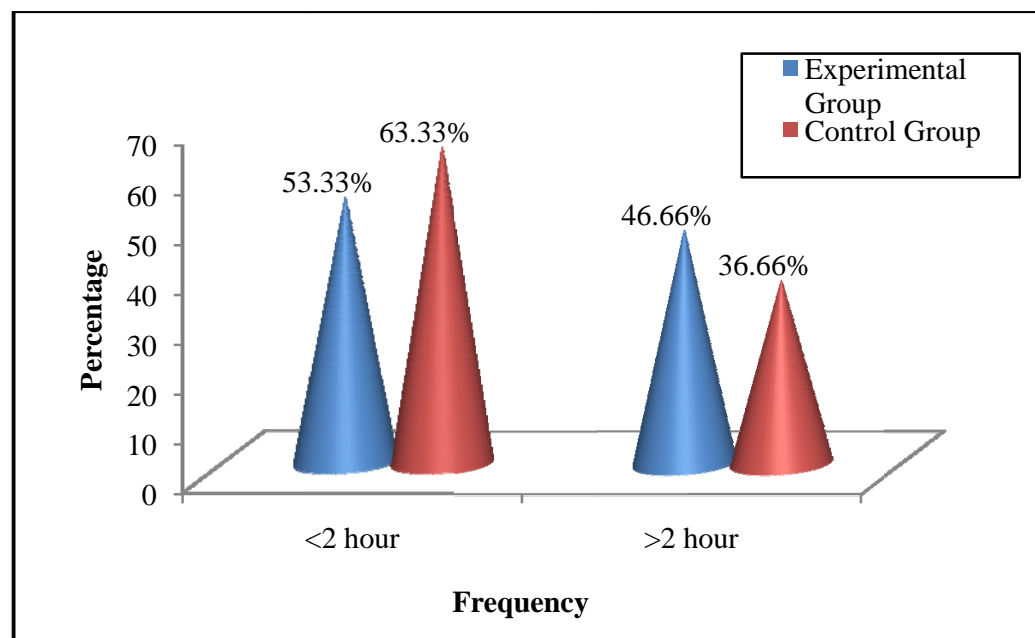


Figure-11: Percentage distribution of Frequency among Caesarean mothers in the experimental and control group.

SECTION-B;**ASSESSMENT ON LEVEL OF BREAST ENGORGEMENT
AMONG CAESAREAN MOTHERS IN EXPERIMENTAL AND
CONTROL GROUP****Table-2: Assessment of the pre-test and post test level of breast engorgement
among Caesarean Mothers in Experimental and Control Group****(N=60)**

S.No	Level of breast Engorgement	Experimental group				Control group			
		Pre test		Post test		Pre test		Post test	
		f	%	f	%	f	%	f	%
1.	Normal	0	0	26	86.6	0	0	0	0
2.	Mild Engorgement	23	76.7	4	13.3	25	83.3	25	83.3
3.	Moderate Engorgement	7	23.3	0	0	5	16.6	5	16.6
4.	Severe Engorgement	0	0	0	0	0	0	0	0

The table 2 reveals the frequency and percentage distribution of pre test and post level of breast engorgement among Caesarean mothers in experimental and control group.

With regards to the level of breast engorgement in experimental group in pre test out of 30 caesarean mothers, none of them were normal, 23(76.7%) of the

mothers had mild breast engorgement, 7(23.3%) had moderate breast engorgement, and none of them had severe breast engorgement. In post test, out of 30 caesarean mothers 26 (86.6%) had normal, 4(13.3%) of the mothers had mild breast engorgement, none of them had moderate and severe breast engorgement.

With regards to the level of breast engorgement in control group in pre test, out of 30 caesarean mothers, none of them were normal, 25(83.3%) of the mothers had mild breast engorgement, 5(16.6%) had moderate breast engorgement, and none of them had severe breast engorgement. In post test, out of 30 caesarean section mothers none of them had normal, 25(83.3%) of the mothers had mild breast engorgement, 5 (16.6%) had moderate breast engorgement and none of them had severe breast engorgement.

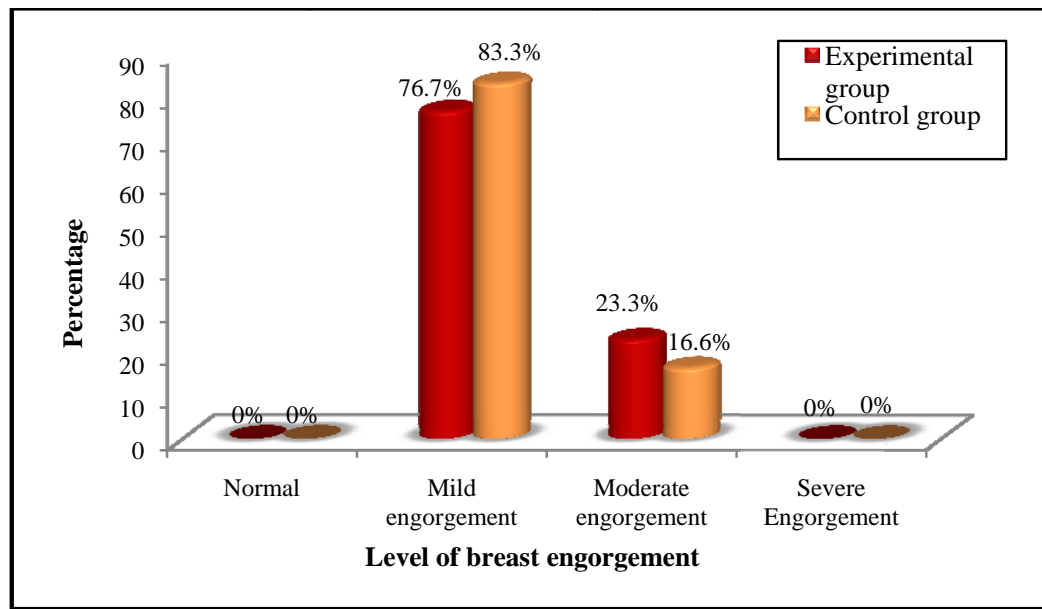


Figure 12: Percentage distribution of Pretest level of breast engorgement among caesarean mothers in experimental and control group.

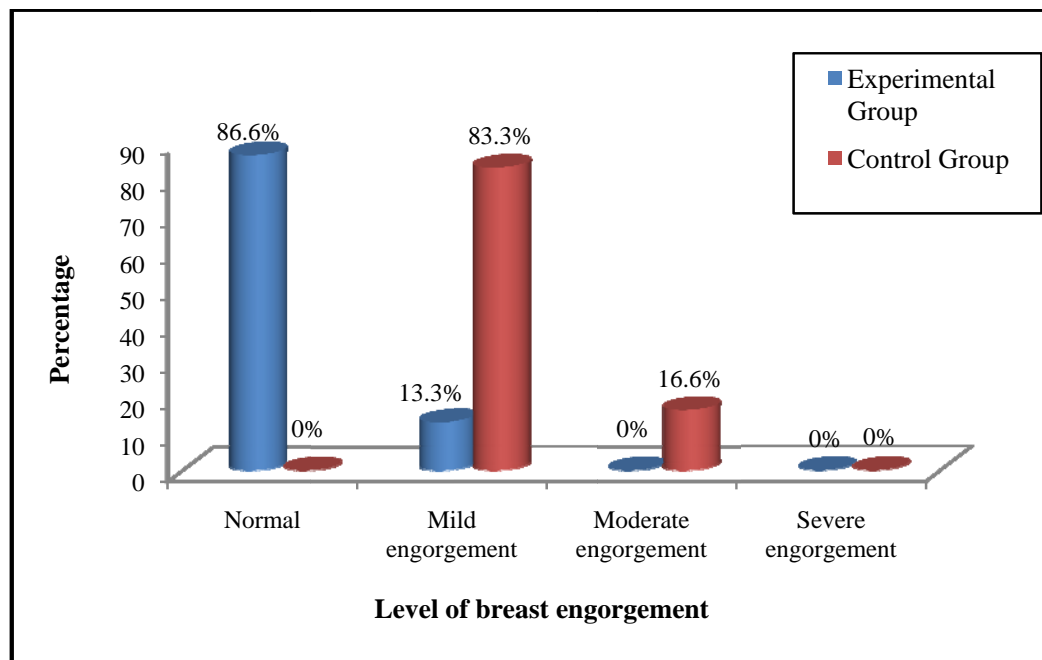


Figure 13: Percentage distribution of Posttest level of breast engorgement among caesarean mothers in experimental and control group.

Table - 3: Mean and Standard Deviation of Pre test level of breast engorgement among caesarean Mothers in Experimental and control group.

(N=30)

S. No.	Group	Mean	Standard Deviation
1.	Experimental	2.86	2.8
2.	Control	2.73	2.67

Table 3 reveals the mean and standard deviation of pretest on breast engorgement among caesarean mothers in experimental and control group.

With regards to the pretest mean value 2.86 with standard deviation of 2.8 in experimental group. In control group mean value was 2.73 with standard deviation of 2.67.

Table-4: Assessment of the post test level of breast engorgement among caesarean mothers in experimental and control group.

(N=30)

S.No	Group	Level of Breast Engorgement							
		Normal		Mild		Moderate		Severe	
		f	%	f	%	f	%	f	%
1.	Experimental Group	26	86.6	4	13.3	0	0	0	0
2.	Control Group	0	0	25	83.3	5	16.6	0	0

Table 4 reveals the frequency and percentage distribution of post test level of breast engorgement among caesarean mothers in experimental and control group.

With regards to the level of breast engorgement in experimental group among caesarean mothers 26 (86.6) were normal, 4(13.3) had mild breast engorgement and none of the mothers had moderate and severe breast engorgement.

With regards to the level of breast engorgement in control group among caesarean mothers none of the mothers were normal, 25(83.3) had mild breast engorgement, 5(16.6) had moderate breast engorgement and none of them had severe breast engorgement.

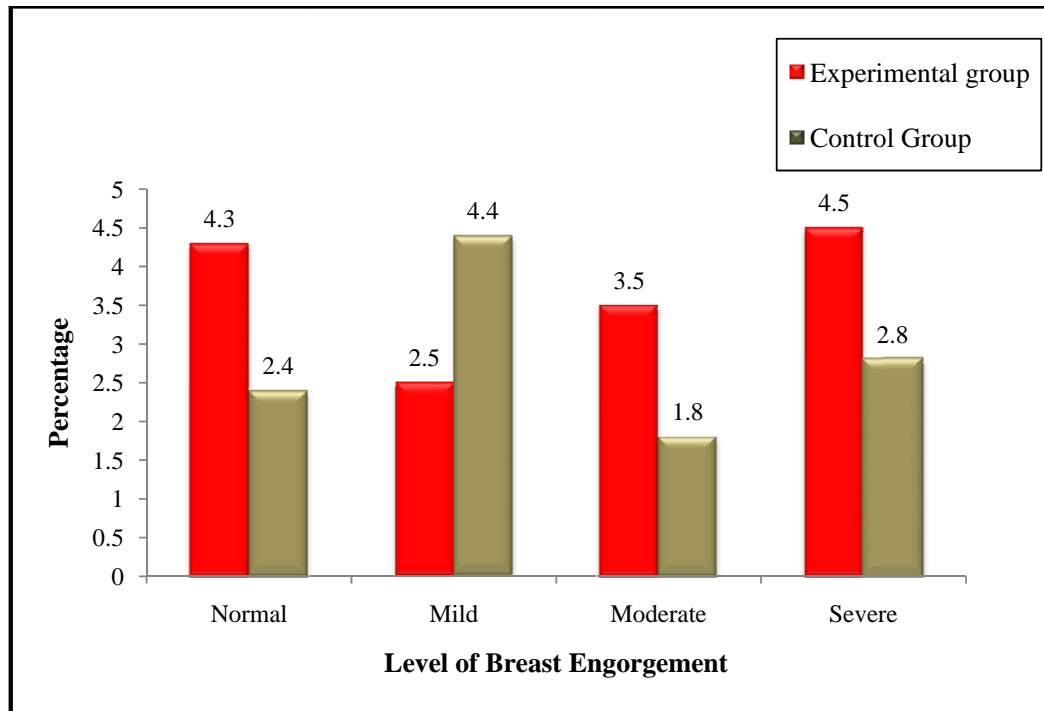


Figure-14: Assessment of the post test level of breast engorgement among caesarean mothers in experimental and control group.

Table-5: Mean and Standard Deviation of Post-test level of breast engorgement among Caesarean mothers in Experimental Group and control group.

(N=60)

S. No.	Group	Mean	Standard Deviation
1.	Experimental Group	1.13	1.10
2.	Control Group	2.83	2.77

Table 5 reveals the mean and standard deviation of the post test level of breast engorgement among caesarean mothers in experimental and control group.

With respect to experimental group of post test mean was 1.13 with standard deviation of 1.10. The mean of control group was 2.83 with standard deviation of 2.77.

SECTION –C

COMPARISON OF LEVEL OF BREAST ENGORGEMENT AMONG CAESAREAN MOTHERS IN EXPERIMENTAL AND CONTROL GROUP.

Table-6: Comparison of Mean and standard deviation of the pre and post test level of breast engorgement among caesarean mothers in experimental Group

(N=30)

S. No.	Test	Mean	Standard deviation	Mean difference	't' value
1.	Pre test	2.86	2.8	1.73	t = 5.76
2.	Post test	1.13	1.10		S P<0.05

S –Significant

Table 6 shows the paired “t” test to compare the pre test and post test level of breast engorgement among caesarean mothers in experimental group.

The pretest mean value was 2.86 with standard deviation of 2.8 and the post test mean value was 1.13 with standard deviation of 1.10. The mean difference was 1.73. The calculated ‘t’ value was 5.76 which showed that there was a significant difference between the pre and post test level of breast engorgement among caesarean mothers in experimental group at $p < 0.05$ level of significance. Hypothesis was accepted.

Table-7: Comparison of Mean and standard deviation of the pre and post test level of breast engorgement among caesarean mothers in Control Group

(N=30)

S. No.	Test	Mean	Standard deviation	Mean difference	't' value
1.	Pre test	2.73	2.67	-0.1	t = 0.05 NS P<0.05
2.	Post test	2.83	2.77		

NS – Not Significant

Table 7 shows the paired “t” test to compare the pre test and post test level of breast engorgement among caesarean mothers in control group.

The pretest mean value was 2.73 with standard deviation of 2.67 and the post test mean value was 2.83 with standard deviation of 2.77. The mean difference was -0.1. The calculated ‘t’ value was 0.05 which showed that there was a no significant difference between the pre and post test level of breast engorgement among caesarean mothers in control group at $p < 0.05$ level of significance. Hypothesis was rejected.

Table-8: Comparison of Mean and Standard Deviation of Pre test Level of breast engorgement among Caesarean Mothers in Experimental and control group.

(N=60)

S. No.	Group	Mean	Standard Deviation	Level of significance “t’ Value
1.	Experimental	2.86	2.8	0.86
2.	Control	2.73	2.67	NS P<0.05

NS – Not Significant

Table 8 reveals the unpaired “t” test to compare the pretest level of breast engorgement among Caesarean mothers in experimental and control group.

With regards to the Pretest level of breast engorgement among Caesarean mothers in experimental and control group. It was found that ‘t’ value was 0.86 which shows that there was no significant difference in pre test level of breast engorgement among mothers between experimental and control group at $p < 0.05$ level. Hence the hypothesis was rejected at $p < 0.05$ level.

Table-9: Comparison of Mean and Standard Deviation of Post test Level of breast engorgement among Caesarean Mothers in Experimental and control group.

(N=60)

S. No.	Group	Mean	Standard Deviation	Level of significance “t” Value
1.	Experimental Group	1.13	1.10	4.88
2.	Control Group	2.83	2.77	S P<0.05

S-significant

Table 9 reveals the unpaired “t” test to compare the post test level of breast engorgement among Caesarean mothers in experimental and control group.

With regards to the post test level of breast engorgement among mothers in experimental and control group. It was found that ‘t’ value was 4.88 which shows that there was significant difference in post test level of breast engorgement among Caesarean mothers between experimental and control group at $p < 0.05$ level. Hence the hypothesis was accepted.

SECTION-D:**ASSOCIATION OF POST-TEST LEVEL OF BREAST ENGORGEMENT AMONG CAESAREAN MOTHERS IN EXPERIMENTAL AND CONTROL GROUP WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.****Table-10: Association of Post-test Level of breast engorgement among Caesarean mothers in Experimental Group with their Selected Demographic Variables.****(N=30)**

S.No	Demographic variables	Level of Breast Engorgement								x ² value
		Normal		Mild		Moderate		Severe		
		F	%	f	%	f	%	f	%	
1	Age									4.043
	<20 years	9	30	1	3.3	0	0	0	0	df=6
	20-30yrs	7	23.3	3	10	0	0	0	0	NS
	>31years	10	33.3	0	0	0	0	0	0	
2	Educational status									3.110
	Illiterate	10	33.3	0	0	0	0	0	0	df=9
	Primary	5	16.6	1	3.3	0	0	0	0	NS
	Secondary	6	20	1	3.3	0	0	0	0	
	Graduate	5	16.6	2	6.7	0	0	0	0	
3	Occupation									0.177
	House Wife	12	40	2	6.7	0	0	0	0	df=3
	Working	14	46.7	2	6.7	0	0	0	0	NS

4	Gravida									12.65
	Primi	13	43.3	1	3.3	0	0	0	0	df=3
	Second	9	30	1	3.3	0	0	0	0	S
	Multi	4	13.3	2	6.6	0	0	0	0	
5	Postnatal Day									0.747
	3 rd	12	40	1	3.3	0	0	0	0	df=6
	4 th	8	26.6	2	6.6	0	0	0	0	NS
	5 th	6	20	1	3.3	0	0	0	0	
6	Feeding Started									0.181
	1 hr	8	26.6	1	3.3	0	0	0	0	df=6
	1-2 hr	10	33.3	2	6.6	0	0	0	0	NS
	3 hr	8	26.6	1	3.3	0	0	0	0	
7	Duration									0.907
	0-10	11	36.6	1	3.3	0	0	0	0	df=6
	10-20	8	26.6	1	3.3	0	0	0	0	NS
	20-30	7	23.3	2	6.6	0	0	0	0	
8	Frequency									1.61
	< 2 hr	15	50	1	3.3	0	0	0	0	df=3
	>2 hr	11	36.7	3	10	0	0	0	0	NS

NS- Non Significant; S- Significant

Table 10 shows that the chi square was find out the association of post test level of breast engorgement among Caesarean mothers in experimental group with their selected demographic variables.

The study findings showed that there was no significant association of post test level of breast engorgement among Caesarean mothers in experimental group with their selected demographic variables like age, educational status, occupation, postnatal day, feeding started, duration of feeding, frequency of feeding except gravida. Hence the hypothesis was rejected at $P < 0.05$ level.

From the above analysis and interpretation the hypothesis H3 states that “there is significant association between the post test level of breast engorgement among caesarean mothers with their selected demographic variables” was rejected except gravida.

Table-11: Association of Post-test level of breast Engorgement among Caesarean mothers in control Group with their Selected Demographic Variables (N=30)

S.No	Demographic variables	Level of Breast engorgement								X ² Value
		Normal		Mild		Moderate		Severe		
		f	%	f	%	f	%	f	%	
1	Age									2.105
	<20 years	0	0	11	36.7	2	6.6	0	0	df=6
	20-30yrs	0	0	8	26.7	3	10	0	0	NS
	>31years	0	0	6	20	0	0	0	0	
2	Education									1.139
	Illiterate	0	0	6	20	1	3.3	0	0	df=9
	Primary	0	0	7	23.3	2	6.6	0	0	NS
	Secondary	0	0	8	26.7	2	6.6	0	0	
	Graduate	0	0	4	13.3	0	0	0	0	
3	Occupation									3.3
	House Wife	0	0	9	30	4	13.3	0	0	df=3
	Working	0	0	16	53.3	1	3.33	0	0	NS

4	Gravida									3.12 df=3 S
	Primi	0	0	13	43.3	2	6.7	0	0	
	Secondary	0	0	6	20	0	0	0	0	
	Multi	0	0	6	20	3	10	0	0	
5	Postnatal Day									1.51 df=6 NS
	3 rd	0	0	11	36.6	3	10	0	0	
	4 th	0	0	8	26.7	2	6.7	0	0	
	5 th	0	0	6	20	0	0	0	0	
6	Feeding Started									0.936 DF=6 NS
	1 hr	0	0	7	23.3	1	3.3	0	0	
	1-2 hr	0	0	5	16.6	2	6.7	0	0	
	3 hr	0	0	13	43.3	2	6.7	0	0	
7	Duration									1.177 df=6 NS
	0-10	0	0	10	33.3	1	3.3	0	0	
	10-20	0	0	10	33.3	2	6.7	0	0	
	20-30	0	0	5	16.6	2	6.7	0	0	
8	Frequency									1.407 df=3 NS
	< 2 hr	0	0	17	56.6	2	6.7	0	0	
	>2 hr	0	0	8	26.6	3	10	0	0	

NS- Non Significant: S- Significant.

Table 11 shows that the chi square was find out the association of post test level of breast engorgement among Caesarean mothers in Control group with their selected demographic variables.

The study findings showed that there was no significant association of post test level of breast engorgement among Caesarean mothers in control group with their selected demographic variables like age, educational status, occupation, postnatal day, feeding started, duration of feeding, and frequency of feeding except gravida. Hence the hypothesis was rejected at $P < 0.05$ level.

From the above analysis and interpretation the hypothesis H3 states that “there is significant association between the post test level of breast engorgement among caesarean mothers with their selected demographic variables like gravida.

CHAPTER – V

DISCUSSION

This chapter deals with the discussion of the data analyzed based on the objectives and hypothesis of the study. The problem stated is “A study to assess the effectiveness of breast massage on reduction of breast engorgement among Caesarean mothers admitted in selected hospital at Tirunelveli. The discussion is based on the objectives of the study and the hypothesis specified in the study.

MAJOR FINDINGS OF THE STUDY

1. On analysis of frequency and percentage of demographic variables, majority of mothers 10(33.33%) were in all age groups in experimental group, whereas in the control group 13(43.3%) of subjects were between the age group of <20 years.
2. With regard to Educational status, majority of patients 10 (33.33%) were illiterate in the experimental group, whereas in the control group majority of mothers 10 (33.3%) were secondary education.
3. With regards to Occupation, majority of mothers 16 (53.3%) were working in the experimental group, whereas in the control group 17(56.7%) of subjects were working.
4. With regards to gravida, majority of patients 14 (46.7%) were Primi mothers in the experimental group, whereas in the control group 15(50%) of subjects were Primi.

5. With regards to Postnatal day, majority of patients 13(43.3%) of them were in 3rd day, in the experimental group, whereas in the control group 14(46.7%) of subjects were also in 3rd day.
6. With regards to feeding started, majority of patients 12(40%) were started within 1 hour in the experimental group and 15(50%) were started feeding within 3 hour in the control group.
7. Regarding the duration of feeding, majority of patients 12(40%) of them were between 0-10 minutes in the experimental group. whereas in the control group, majority of patients 12(40%) of them were between 10-20 minutes.
8. With regard to frequency of feeding, majority of patients 16 (53.33%) were <2 hour in the experimental group, whereas in the control group majority of patients, 19(63.33%) were <2 hour.

The first objective was to assess the pre-test level of breast engorgement among Caesarean mothers in experimental and control group.

The analysis of the pretest level of breast engorgement among experimental group revealed out of 30 caesarean mothers, none of them are normal, 23(76.7%) of the mothers had mild breast engorgement, 7(23.3%) had moderate breast engorgement, and none of them had severe breast engorgement. With regards to the level of breast engorgement in control group in pre test out of 30 caesarean mothers, none of them are normal, 25(83.3%) of the mothers had mild breast engorgement, 5(16.6%) had moderate breast engorgement, and none of them had severe breast engorgement.

The above result was supported **Chin and yen (2008)** was conducted a study on effect of Gua-Sha therapy on breast engorgement in Chinese hospital. The

study was conducted among 54 postpartum women at the Level III medical teaching Hospital. The samples were assigned randomly into experimental and control group. The experimental group received Gua-Sha therapy and the control group were provided hot packs and massage. Before the intervention, the severity of breast engorgement was assessed using six point breast engorgement scale and visual analogue scale. The result of an generalized estimating equation analysis estimated that , with the exception of body temperature, all variables remained more significant to improving engorgement symptoms in the experimental group than those in the control group. Findings provided empirical evidence supporting that Gua-sha therapy used as an effective technique in the management of breast engorgement.

The second objective was to find out the effectiveness of breast massage on reduction of breast engorgement among caesarean mothers in experimental group and control group.

The analysis of post test level of breast engorgement among experimental group, out of 30 caesarean section mothers 26 (86.6%) are normal, 4(13.3%) of the mothers had mild breast engorgement, none of them had moderate and severe breast engorgement. majority of patients 26 (86.66%) had no breast engorgement and in the control group majority of patients 25 (83.3%) had mild breast engorgement. With regards to the level of breast engorgement in control group in post test, out of 30 caesarean mothers none of them are normal, 25(83.3%) of the mothers had mild breast engorgement, 5 (16.6%) had moderate breast engorgement and none of them had severe breast engorgement.

The analysis of mean score of pain among experimental group was 1.13 and control group was 2.83 after interventions. Standard deviation after intervention

among experimental group was 1.10 and control group was 2.77 and calculated 't' value was 4.88. It shows reduction of breast engorgement in experimental group.

The above results was supported by **Waldenstr et al., (2004)** was conducted a study on total of 500 patients and about 95% of mothers trained about correct technique of breast feeding in Bangladesh. The samples were collected randomly and then breast massage was given on an average of about 33% of attending mothers who suffered from different breast problems like engorged breast, sore nipples etc. For improving lactation and decreasing breast engorgement they were given breast massage. They concluded that most of the mothers required massage technique, counseling, and correction of position for breast engorgement.

The third objective was to compare the pre-test and post- test level of breast engorgement among caesarean mothers in experimental group and control group.

The analysis of pre and posttest level of breast engorgement among the experimental group, the mean level of breast massage on reduction of breast engorgement was 2.86 and standard deviation was 2.8 for the pretest and mean level of breast massage on reduction of breast engorgement was 1.13 with standard deviation was 1.10 for the post test and calculated 't' value was 5.76 . It shows the marked reduction of breast engorgement in experimental group.

The above result was supported by **woolridge et al., (2009)** was conducted a study to find out the effectiveness of warm compress and breast massage. Mothers were selected by purposive sampling. Breast feeding mothers rated their level of breast engorgement twice daily by using six engorgement scale. The results were

analyzed and calculated. Researcher concluded the breast massage is effective when compare to warm compress.

The fourth objective to associate the post test level of breast massage on reduction of breast engorgement among lower segment caesarean section mothers in experimental and control group with their selected demographic variables.

Association of post test level of breast massage on reduction of breast engorgement among caesarean mothers with demographic variables was done by using chi-square test.

Data findings revealed that there was no statistically significant association of post assessment of breast engorgement among mothers in experimental and control group with selected demographic variables at $p < 0.05$ level of significance. Association of post assessment on level of breast massage on reduction of breast engorgement among caesarean mothers in experimental showed that there was a statistical significance in gravida.

The association on post test level of breast massage on reduction of breast engorgement among caesarean mothers in control group showed that there was no statistical significance with demographic variables

From the analysis there was no association between post-test level of breast massage on reduction of breast engorgement among mothers in the experimental group and control group. Hypothesis was rejected except gravida in experimental group and in control group.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATION, LIMITATION AND RECOMMENDATIONS

This chapter deals with the summary, conclusion, implications, limitations and recommendations which creates a base for evidence based practice.

SUMMARY

Breast feeding is a gift that can only be given by giving oneself. But it may get affected by certain complication if it is not managed properly. This may also lead to the mother failing to enjoy her motherhood. If the midwife understands the effect of breast massage on the level of breast engorgement among Caesarean mothers they will be prepared to provide support and care. Preventing complication during breast feeding offering a variety of pharmacological and non-pharmacological approaches.

It is a type of non pharmacological method, breast massage on reducing the level of breast engorgement. It can be done safely or can be done by a professional. So, the investigator assessed the effectiveness of breast massage on level of breast engorgement among Caesarean mothers who are admitted in selected Hospital at, Tirunelveli.

Objectives of the study were;

- To assess the pre-test level of breast engorgement among mothers undergone caesarean section in experimental and control group.

- To find out the effectiveness of breast massage on reduction of breast engorgement among mothers undergone caesarean section in experimental group.
- To compare the pre-test and post- test level of breast engorgement among mothers undergone caesarean section in experimental group and control group.
- To associate the post-test level of breast engorgement among mothers undergone caesarean section in experimental and control group with their selected demographic variables.(Age, education, occupation, gravida ,post natal day, time when feeding started, duration and frequency of breast feeding).

Hypotheses of the study were:

- H₁: Mean post -test level of breast engorgement among mothers undergone caesarean section in experimental group will be significantly lower than the mean post- test level of reduction of breast engorgement among mothers undergone caesarean section in control group.
- H₂: There was a significant difference between mean pre-test and post- test level of breast engorgement among lower segment caesarian section mother in experimental and control group.
- H₃: There was a significant association between post -test level of breast engorgement among mothers undergone caesarean section in experimental and control group with their selected demographic variables. (age, education, post natal day, occupation, time when feeding started, parity, duration and frequency of breast feeding).

The assumptions of this study were,

- Breast engorgement may cause pain, tenderness, discomfort and heaviness to the lower segment caesarian section mothers.
- Breast massage may help to reduce the breast engorgement among the Lower segment caesarian section mothers.
- Breast Engorgement. is not given attention it may leads to mastitis & breast abscess leading to poor feeding of neonate

Review of Literature Collected for the Studies Related to,

The literature gathered from exclusive criteria is depicted under the following headings.

Section-A: Literature related to prevalence of Breast engorgement

Section-B: Literature related to breast massage

- . **Section-C:** Literature related to effect of Breast massage on breast Engorgement.

The conceptual frame work for the study was based on modified Wiedenbach's helping art of clinical nursing theory and it provided a complete framework in order to achieve the objectives of the study.

The research designs selected for the study was quasi experimental pretest and post test control group design. The study was conducted in selected Hospital, Tirunelveli. The tool used for data collection was consisting of demographic variables such as age, education, occupation, gravida, postnatal day, feeding started, duration, frequency. The researcher was assessed the level of breast engorgement by using standard breast engorgement scale. The pilot study was conducted in Balaji Hospital,

Tirunelveli and findings revealed that the tool was feasible, reliable and practicable to conduct the main study.

The tool was validated by five experts and the reliability of the tool was established by test- retest method.

The main study was conducted in Balaji and Nallamuthusamy Hospital, Tirunelveli. The 60 Caesarean mothers from 3rd to 5th postnatal day who fulfilled the inclusive criteria were selected for the study. Out of which 30 mothers were allotted to experimental group and 30 were allotted to control group through the purposive sampling technique.

Based on the inclusive criteria the samples were selected and allotted to the experimental and control group. Mothers of the experimental group were given breast massage and control group was not given breast massage. The post test level of breast engorgement among Caesarean mothers was assessed using six point engorgement scale. Data pertaining to the demographic variables were collected by the investigator by interview method. Both inferential and descriptive statistics were used to analyze the data.

The findings of the study revealed that the calculated 't' value was 4.88 which showed highly statistical significant difference in post test level of breast engorgement among mothers undergone caesarean section in experimental group and control group at $p < 0.05$ level. Hence the hypothesis stated that there was a significant difference between the Mean post -test level of breast engorgement among mothers undergone caesarean section in experimental group will be significantly lower than the mean post- test level of reduction of breast engorgement among mothers undergone caesarean section in control group at $p < 0.05$. So the hypothesis was accepted.

The findings of the study revealed that the calculated 't' value was 5.76 which showed highly statistical significant difference in pretest and post test level of breast engorgement among mothers undergone caesarean section in experimental group whereas in control group the calculated 't' value was 0.05 which showed no statistical significant difference in pretest and post test level of breast engorgement among mothers undergone caesarean section at $p < 0.05$ level. Hence the hypothesis stated that there will be a significant difference between mean pre-test and post- test level of breast engorgement among mothers undergone caesarean section in experimental and control group was accepted.

Association of post test assessment level of breast engorgement with their selected demographic variables among experimental group showed that there was a significance difference except gravida. Hence the hypothesis stated that there was a significant association of post test level of breast engorgement among experimental group mothers with the selected demographic variables at $p < 0.05$. So the hypothesis was rejected.

Association of post test level of breast engorgement with their selected demographic variables among control group showed that there was no significance difference. Hence the hypothesis stated that there was a significant association of post test level of breast engorgement among control group mothers with the selected demographic variables at $p < 0.05$. So the hypothesis was rejected except gravid.

CONCLUSION

The present study assessed the effectiveness of breast massage on level of breast engorgement among caesarean mothers. The results of the study concluded that applying breast massage was effective in reducing the level of breast engorgement

among cesarean mothers. Breast Massage is easy to apply, not painful and can enhance comfort to the mother in the postnatal period, hence could easily be adopted as a regular intervention. Therefore, the investigator felt that more importance should be given to the assessment on level of breast engorgement among cesarean mothers in 3-6th postnatal day using standard breast engorgement scale, following the intervention of breast massage can be given as a non-pharmacological measures to reduce breast engorgement.

IMPLICATIONS

The health professionals especially maternity nurse has a major role in supporting and motivating the post natal mother for exclusive breast feeding of their infants, which is a most cost effective tool to reduce neonatal mortality and morbidity, breast engorgement and breast cancer.

The investigator has derived the following implications, which are of vital concern in the field of nursing practice, nursing education, nursing administration and nursing research.

Implications for Nursing Practice

1. Advanced nursing practice is one of the evolving trends in nursing practice in which has the definite specified role for the nurses.
2. Nurses integrate the science and art of nursing into their practice the quality of care provided to the mothers is at a level of excellence that benefits the mothers in innumerable way.
3. Breast massage facilitates the mother in relieving the breast engorgement, discomfort and pain within shorter duration. The intervention on breast engorgement enhances the skill and effort of the nurse midwife in monitoring

and treating the post natal mothers with breast engorgement. Hence, the application of breast massage can be made as a routine practice in treating the post natal mothers with breast engorgement.

Implications for Nursing Education

1. Application of Breast massage on breast engorgement among post natal mothers can be introduced as an alternative therapy in nursing curriculum.
2. Provide adequate clinical exposure for the students to give effective and safe nursing care in reducing the level of breast engorgement.
3. Nurse educators can highlight the non-pharmacological measures for reducing the level of breast engorgement, in the curriculum of basic nursing education as a part of postnatal care.
4. Encourage the students for effective utilization of research based practices.

Implication for Nursing Administration

1. Collaborative with governing bodies to formulate standard policies and protocols to emphasize nursing care in the postnatal mothers.
2. Conduct in-service programme and continuing education programme for reduction of level of breast engorgement and post natal complications.
3. Ensure and conduct workshops, conferences, seminars on non-pharmacological methods to reduce the level of breast engorgement.

Implication for Nursing Research

1. As a nurse researcher, promote more research on postnatal complications.
2. Disseminate the findings of the research through conferences, seminars and publishing in nursing journals.

3. Promote effective utilization of research findings on reducing the level of breast engorgement among Caesarean mothers.

LIMITATIONS

1. Only limited literatures and studies were obtained from the Indian context.
2. Generalization will be better if large sample included.
3. The duration of the intervention for post natal mothers with bilateral breast engorgement lasts for one hour, during which the researcher has to terminate the intervention earlier as the baby care demands.

RECOMMENDATIONS

The study recommends the following future research.

1. The similar study can be conducted with larger samples for better generalization.
2. A study can be conducted to assess the knowledge and practice of breast massage on level of breast engorgement among nurse midwives
3. A study can be conducted to assess the effectiveness of other alternative and complementary therapy like Gua sha therapy on reducing the level of breast engorgement.
4. A comparative study can be conducted to assess the effectiveness of cabbage leaves and jasmine flower on breast engorgement among cesarean mothers.

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APPENDIX – A
LETTER SEEKING AND GRANTING PERMISSION FOR CONDUCTING
THE STUDY



SRI K. RAMACHANDRAN NAIDU
COLLEGE OF NURSING

Approved by Govt. of Tamilnadu and Indian Nursing Council / T.N.C
Affiliated to the Tamilnadu Dr. M.G.R. Medical University

K.R. Naidu Nagar - 627 753, Paruvakudi Village, Post Bag No.1, Karivalam (via)
Sankarankovil (Tk), Tirunelveli (Dt), Ph: 04636 - 260950, Fax : 04636 - 260377.
E - Mail : srikmcon@yahoo.com Web : srikmaiducollegeofnursing.org

To,

The Director,
Balaji Hospital,
Kailasapuram middle street,
Tirunelveli (Dist)

Miss.P.Krishnaveni is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of the M.Sc (N) degree, she needs to conduct research project.

Her chosen research project is as follows **"A study to assess effectiveness of breast massage on reduction of breast engorgement among lower segment caesarean section mothers admitted in selected hospital at Tirunelveli District"**.

She will abide by rules and regulation of the hospital and adhere to the policies during her period of data collection from 01.08.2013 to 31.08.2013. Permission may kindly be granted to her for conduction of the study at your esteemed hospital.

Further details of the proposal project will be furnished by the students personally, confidentiality will be ensured in the research project.

Thanking you

Petuni Aed

V. Preemasudha

Dr. V. Preemasudha, MBBS., DGO, DNB.
Consultant Gynaecologist, Obstetrician &
Urogynaecologist
Reg. No: 78187

Yours faithfully

Saravathi N

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753, Karivalam (Via)
Sankarankovil (T.N.) Tirunelveli Dt.,



SRI K. RAMACHANDRAN NAIDU COLLEGE OF NURSING

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E - Mail : srikmcon@yahoo.com Web : srikmaiducollegeofnursing.org

To,

The Director,
Nallamuthu samy Hospital,
Sankarankovil,
Tirunelveli (Dist)

Miss.P.Krishnaveni is a bonafide student of our college studying in M.Sc (N) programme. As a partial fulfillment of the university requirement for the award of the M.Sc (N) degree, she needs to conduct research project.

Her chosen research project is as follows **"A study to assess effectiveness of breast massage on reduction of breast engorgement among lower segment caesarean section mothers admitted in selected hospital at Tirunelveli District"**.

She will abide by rules and regulation of the hospital and adhere to the policies during her period of data collection from 01.08.2013 to 31.08.2013. Permission may kindly be granted to her for conduction of the study at your esteemed Hospital.

Further details of the proposal project will be furnished by the students personally, confidentiality will be ensured in the research project.

Thanking you

Yours faithfully

Principal
Sri K. Ramachandran Naidu
College of Nursing
K.R. Naidu Nagar - 627 753, Karivalam (Via)
Sankarankovil (T.R.) Tirunelveli Dt.,

Permitted
Nam
6/8/13
Dr. Vasuki Nallamuthusamy M.B.B.S DCC
Registered Medical Practitioner
Regd. No. 45590
SANKARANKOVIL - 627753

APPENDIX - B
LETTER SEEKING EXPERTS OPINION FOR THE VALIDITY
OF TOOL

From

P.Krishna veni,
M.Sc (N) II year,
Sri.K.Ramachandran Naidu College of Nursing,
Sankarankovil (Tk), Tirunelveli (Dt).

To

Respected Sir/Madam,

Subject: Request for opinion and suggestions of expert for establishing content validity of research tool.

I, P.Krishna veni, II year student of master of nursing course (Obestetrical and Gynaecological Nursing) at Sri.K.Ramachandran Naidu College of Nursing. I have selected the following topic for my dissertation, **“A study to assess the effectiveness of breast massage on reduction of breast engorgement among the lower segment ceaserian section mothers admitted in selected Hospital, Rajapalayam.”**to be submitted to Dr.M.G.R.Medical University, in partial fulfilment of university requirement for award of master of nursing degree. I humbly request you to kindly validate the tool and give your valuable suggestions. Your prompt opinions and suggestions will be appreciated.

Thanking you,

Place:
faithfully

Yours

Date:

(P.Krishnaveni)

Enclosures:

- Content validation certificate
- Statement of problem, objectives of the study, operational definitions, methodology
- Research tool
- Criteria check list for validation of tool.

APPENDIX-C

LIST OF EXPERTS FOR CONTENT VALITY

Medical Experts

- 1. Dr.Pethukani, M.B.B.S.,D.G.O.,**
Veeramani Hospital,
Perumal puram,
Thoothukudi.

Nursing experts

- 2. Mrs.Vijayalakshmi, M.Sc. (N),,**
HOD in Obertetric and gynecology department.
Omayal achi college of nursing,
Chennai.
- 3. Mrs.Bhagavthi M.Sc. (N),,**
Reader in Obertetric and gynecology department.
Omayal achi college of nursing,
Chennai.
- 4. Mrs.Mahiba M.Sc. (N),,**
Reader in OBG department,
Christian college of nursing,
Neyyoor.
- 5. Mrs.Kumutha, M.Sc. (N),,**
Reader in OBG Department
C.S.I.Ellisa Calldwell College,
Idayankudi.

APPENDIX-D

**CERTIFICATE OF ENGLISH EDITING
TO WHOMSOEVER IT MAY CONCERN**

This is to certify that the dissertation work "A Quasi experimental study to assess the effectiveness of breast massage on reduction of breast engorgement among caesarean section mothers admitted in selected hospital at Thrunelveli" done by **Ms.P.Krishna veni M.Sc. (Nursing)** in Sri K. Ramachanadaran Naidu College of Nursing, Tirunelveli was edited for English language appropriateness by **Mrs.Prema., M.A., M.Ed., M.Phil. (English)**.

Date: 3.2.2014

P. Prema

Signature

P. Prema M.A., M.Ed., M.Phil.
P.G. Asst. (English),
Govt. Hr. Sec. School,
Uchinatham, Ramanad Dist.

Designation

APPENDIX-E

INFORMED CONSENT

I **Ms.P.Krishna veni** , IInd Year, M.Sc. (Nursing) student from Sri K. Ramachandaran Naidu College of Nursing, Tirunelveli conducting a study **“A Quasi experimental study to assess the effectiveness of breast massage on reduction of breast engorgement among caesarean mothers admitted in at Balaji and Nallamuthusamy Hospital.”**As a partial fulfillment of the requirement for the degree of M.Sc. (Nursing) under the Tamil Nadu Dr. M. G. R. Medical University. I assure you that the response given by you will be kept confidentially. So, I request you to kindly cooperate with me and participate in this study.

Thank you,

APPENDIX – F

DEMOGRAPHIC VARIABLES

DEMOGRAPHIC DATA

Sample Number:

1. Age

- a) More than 20 years
- b) 25 -30 years
- c) Less than 35 years

2. Education

- a) Illiterate
- b) Primary education
- c) Secondary education
- d) Graduate

3. Occupation

- a) Working
- b) Home maker

4. Gravida

- a) Primi mother
- b) Second gravida
- c) Multi gravid

5. Post natal day

- a) 3 rd day
- b) 4 th day
- c) 5 th day

6. Time when feeding started after delivery

- a) With in 1 hour
- b) 1-2 hours
- c) 3 hours

7. Duration of breast feeding

- a) 0-10 min.
- b) 10-20min.
- c) 20- 30 min

8. Frequency of feeding

- a) Within half an hour
- b) After half an hour

APPENDIX - G

SECTION B

SIX - POINT ENGORGEMENT SCALE

The scale was formulated by Hill and Humenick (Pamela.D.Hill and Sharron.S. Humenick) in the year 1994. This is a standardized scale used to assess the severity of breast engorgement

SCORE	DESCRIPTION
1	Soft, no change in the breast
2	Slight change in the breast
3	Firm, non-tender breast
4	Firm, beginning tenderness in breast
5	Firm tender
6	Very firm, very tender

Interpretation of score:

- Score 1 : Normal
- Score 2 and 3 : Mild engorgement
- Score 4 and 5 : Moderate engorgement
- Score 6 : Severe engorgement

APPENDIX –H

INTERVENTION GUIDE FOR BREAST MASSAGE

As a part of research study intervention chosen for the study was breast massage

DESCRIPTION OF INTERVENTION

Procedure

Step 1:

Select an appropriate place and provide privacy to the caeseran mothers. Before doing the intervention explains the procedure to the mother.

Step 2:

Wash hands before and after the procedure. Ask the mothers to lie down on the bed. At first expose the both breast assess the breast engorgement by using the standardized breast engorgement scale.

Step 3:

Make the fingers like pads by using the right hand and support the breast by left hand.

Step 4:

Give the soft, gentle, circular, kneading motion massage to the engorged breast. For right side engorged breast clock wise massage provided from center to periphery and for left side engorged breast anti clock wise massage from center to periphery for 10-15 minutes in each breast twice a day for 3 days. Duration between the both breast massage is 2 hours.

Step 5:

Next starts rotary movement on the nipple to promote lymphatic flow and express the breast milk with the use of both hands.

Step 6:

Advice the mother to feed the baby after the breast massage. Repeat the massage after the interval of 2 hours and continue this procedure for 3 days.

Step 7:

Finally wash hands and assess the breast for the level of engorgement by using the standardized breast engorgement tool. Record the procedure with date and time.