A COMPARATIVE STUDY TO ASSESS THE BREAST MILK VOLUME AMONG THE MOTHERS OF PRETERM BABIES WITH MANUAL EXPRESSION AND BREAST PUMP EXPRESSION AT RL JALAPPA HOSPITAL AND RESEARCH CENTER, KOLAR, KARNATAKA.

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In partial fulfilment for the requirement of degree of

BASIC BSC NURSING

Under the guidance of

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DECLARATION BY THE CANDIDATES

We hereby affirm that the study project, which is named **A Comparative Study to assess the Breast milk volume among the mothers of preterm babies with manual expression and Breast pump expression at RL Jalappa Hospital and Research Center, Kolar, Karnataka** is a bonafide research work carried out by us under the guidance of **Dr**. **Lavanya Subhashini**, **Vice-Principal**, **HOD**, **Dept**. **of Child Health Nursing** and under the co-guidance of **Mrs Sumalatha C.V**, **Assistant Professor**, **Dept**. **of Child Health Nursing**, Sri Devaraj Urs College Of Nursing, Tamaka, Kolar.

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"Commit your work to the lord and your plans will succeed."(Proverbs 16:3)

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ABSTRACT

"A Comparative Study to Assess the Breast Milk Volume among the Mother's Of Preterm Babies with Manual Expression and Breast Pump Expression at RL Jalappa Hospital and Research Centre, Kolar, Karnataka"

OBJECTIVES OF THE PROBLEM

1. To assess the breast milk volume among mothers of preterm babies by manual method of expression.

2. To assess the breast milk volume among mothers of preterm babies by breast pump method of expression.

3. To compare the breast milk volume among mothers of preterm babies with manual and breast pump method of milk expression.

NULL HYPOTHESIS:

$H0_1$: There will be no significant difference in breast milk volume on manual verses breast pump method of breast milk expression.

$H0_2$: There will be no significant difference among mothers of preterm baby with a social demographic variables.

BACKGROUND AND AIMS

Breastmilk availability is significantly impacted by the early start of milk expression, which occurs within an hour after birth. When lactation fails, a breast pump is employed as a lifesaver and manual hand expression is the conventional procedure for

ensuring milk availability. Using a breast pump is recommended when mothers are more uncomfortable expressing milk.

MATERIALS AND METHODS

A non-experimental comparative study was conducted to evaluate the volume of human milk using both manual and breast pump methods. The mother of preterm infants admitted to RLJH Hospital and Research Centre was chosen by a randomized sample approach. . Breast milk volume was assessed by manual expression and breast pump expression for 07 days continuously in the morning, afternoon and evening and recorded in a breast milk volume assessment score sheet.

RESULTS

After data analysis, it was discovered that there was no discernible difference between breast pump and manual expression. Mothers are free to express themselves in whatever way, though.

CONCLUSION

The overall assessment of the study viewed that both of the methods of by hand and electric pump expression are effective. As there is no significant difference between manual method and breast pump technique the mothers can choose any of the methods.

KEY WORDS

Breast pumping and manual techniques, milk expression, preterm babies.

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INTRODUCTION

"A Baby Nursing at a Mother's Breast Is an Undeniable Affirmation of Our Rootedness in Nature."

-DAVID SUZUKI

Premature birth or PTB, is a major healthiness and social ill that is thought to be the primary cause of infant death globally.[1]It has been linked to increased incidence of sensorineural deficits, neuro developmental morbidity, and various respiratory, gastrointestinal, and renal system issues.[2]

The majority of low birth weight newborns are the result of premature birth. India carries the greatest share of the global burden of low birth weight infants(less than 2500 gm), accounting for over 30 % of all neonates, or 7.5 million babies, born there. In fact, LBW/ preterm newborns account for more than 80 % of all neonatal mortality. Breastfeeding helps shield newborns against certain childhood illnesses and gives them sufficient nourishment.[3]

Over the course of a person's life, including the early phases of prenatal development, birth, infants, childhood, adolescents, and the years leading up to maturity, good nourishment is crucial for survivance, physical growth, psychological growth, performance, productivity, health, and over all wellbeing.[4]Due to its unique combination of proteins, enzymes, micronutrients, lipids, and especially long chain fatty acids-all of which are crucial for healthy growth and development- breastmilk offers premature babies the greatest nutrition available.[5]Higher cognitive ability scores are substantially correlated with breast feeding.[6]

Breast feeding is beneficial for premature newborns, as numerous studies have demonstrated for the immunocompromised preterm infant, the health utility of breast

milk are particularly not worthy.[7] Breastfeeding premature babies makes them warmer, more capable of sucking, and less likely to have their ventilator intrupted.[8]

Nonetheless, a mother's experience of nursing baby with a very low birth weight is difficult and draining. Since the preterm infant's undeveloped gastrointestinal tract is initially unable to receive feedings it might be difficult to always provide enough amount of nutrition to them. Postnatal growth limitation has become widespread due to inadequate nutritional intake.[9]

Mothers frequently expressed their breastmilk by pumping their breasts, which is a crucial aspect of their breast feeding behavior. When direct nursing is neither practical nor convenient, many specialist and lactation consultants feel that breastmilk expression is a useful substitutes that enables moms to continue breastfeeding and meet there breastfeeding objectives. The primary motivation behind using a pump to express breastmilk in the past has been feeding an infant who is preterm or unwell.[10]

A child's development is greatly aided by breastfeeding for the first six months of their existence. The best strategy for preventing mortality in children under-five is this one. As soon as possible after the birth, breastfeeding should be started. It takes at least six daily expressions of breastmilk to achieve successful lactation. Therefore, early and fundamental instruction in breastmilk expressing procedures should be provided to moms of very preterm newborns.[11]

The significant of exclusive breastmilk is undoubtable for any kind of neonates whether it is term or preterm. Various study suggest that infant fed with breast milk had got largest immunological. Although breastmilk use and storing in NICU had improved in greatest extent .Better contribution and improved quality supply of human milk had improved child's immunity.[12]

Mothers own milk is extremely advocated for preterm infants due to its benefits on growth and development of child .Feeding breast milk is considered to reduce risk of necrotizing and enterocolitis in infants. Unlike term infants, preterm infants can't suck properly due immaturity, illness so breast pump is suggested. Nonetheless, some mothers feel that giving their children enough breast milk will support their growth and development; if this need is not satisfied, kids will enter a critical stage of development, and this will exacerbate the concern of the mother. For that reason, establishing lactation are essential for mother and infant.[13]

Improvement of technology and treatment in medical field increase premature survival rates. These growing advancement can provide better and immediate care to preterm newborns. Apart from these methods breast milk is non-invasive and optimal method to reduce morbidity and mortality rate in newborns. There are several benefits of breast milk that can aid in improvements in child' antibody, better neuro development. Breast milk also improves maternal involvement, mother-infant interaction in NICU settings.[14]

CHAPTER II

NEED FOR THE STUDY

NEED FOR THE STUDY

For the enteral nutrition of preterm newborns, mother's milk is always the preferred choice.[15]Yet, an early birth is linked to an under developed mammary gland, a delayed start of phase II lacto genesis, and inability to breast feed normally and the presence of mother stress, all of which contribute to a pure milk supply in the early going.[16]

One crucial factor affecting the availability of human milk is the early initiation of milk production, which occurs within an hour after birth.[17]Standared procedure for ensuring milk availability is manual hand expression; in the event of lactation failure, a breast pump is employed as a life saver. The usage of a breast pump is encouraged by increased maternal comfort during milk expression.[18]

Human milk is extensively accepted as the ideal feeding for effective on infants because of its proven health welfare to neonates and their mothers.[19-22]It has specifically dominant health satisfaction for premature babies. Although, preterm birth also constitute various peculiar challenges to breast milk production and feeding. Moms of preterm neonates require early and continuing support to secure ideal human milk feeding through human milk expression and alteration to direct breast feeding when the neonates is ready.[19-22]

As stated towards recommendations from the World Health Organization, feeding should begin within the first hour of the baby's birth, be the exclusive source of nutrition of all newborns up to the age of six months and then continue on a complementary basis for at least two years after that.[23]But preterm newborns reduced

oromotor and pure control over sucking and swallowing result from their neural immaturity, which also lowers the intra oral pressure after sucking. Most infants can start eating with their mouth fully between 32 and 36 weeks of pregnancy.[25]Under such conditions infants must receive expressed breast milk, which may be provided with enteral feeding or a syringe-fed of drop of milk.[25]

The ingestion of human milk, particularly colostrum, is encouraged by the early onset of breastmilk expression. In addition to being nutrient-dense, human milk has several anti-oxidant, anti-bacterial, prebiotic and immune-boosting qualities.[26]Colostrum also contains immunoglobulins such as A,G and M that help fight infection. Even though breastmilk from the mother is the healthiest food source for premature babies and babies with low birth weights.[27]

Expressing Breast milk is a supreme skill for lactating women to acquire, particularly in the case of an urgency. It is safe and effective way to express milk. There are many advantages during the hand expression such as there is no special equipment is needed, it can be used in emergency as well as it can store and transport. It can help to produce extra milk if your hand express after pumping. And there are many side effects too. It take more time to manually express. To create a milk supply for a baby who is not yet breastfed, it can take a lot of physical work and can get exhausting.[28]

The electric breast pump is that it does the work for mother and takes less time than manual breast pumps. There are varieties of breast pumps are available such as hand pumps, electrical pumps as well as battery operated pumps. The positive thinks about breast pumps are it is more familiar too many parents with breast pumps than hand

expression. Most of the mothers are uncomfortable by touching their own breasts. Some electrical breast pumps permit you to express both breast at identical time. By using these method it saves more time and stimulate more milk. And this method have negative like difficulty to find appropriate size of your breast. I t depends on size and shape of the nipples and breast. By using these method women will phase many problems and they have to face unpleasant experience.[28]

CHAPTER -III

OBJECTIVES

CHAPTER-III

OBJECTIVES

STATEMENT OF THE PROBLEM

"A COMPARITIVE STUDY TO ASSESS THE BREAST MILK VOLUME AMONG THE MOTHER'S OF PRETERM BABIES WITH MANUAL EXPRESSION AND BREAST PUMP EXPRESSION AT RL JALAPPA HOSPITAL AND RESEARCH CENTRE, KOLAR, KARNATAKA"

OBJECTIVES OF THE PROBLEM

1. To assess the breast milk volume among mothers of preterm babies by manual method of expression.

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NULL HYPOTHESIS:

$H0_1$: There will be no significant difference in breast milk volume on manual verses breast pump method of breast milk expression.

$H0_2$: There will be no significant difference among mothers of preterm baby with a social demographic variables.

OPERATIONAL DEFINITION

1. Comparative: In the study comparative means comparing the breast milk volume on manual verses breast pump milk expression
2. Manual method: Expression of breast milk by manually by hand.
3. Breast pump method: Expression of breast milk by using a device called breast pump.
4. Preterm babies: Babies who are delivered in the middle of 34-36 weeks of gestation are admitted in NICU.

ASSUMPTION

There may be difference in feeding pattern between manual verses breast pump method of milk expression in preterm babies.

DE-LIMITATIONS

The investigation is restricted to,

- Premature neonates with gestational age between 32-36 weeks.
- Preterm newborns admitted in NICU in RL Jalappa Hospital and Research Center, Kolar.

CHAPTER-IV

REVIEW OF LITERATURE

CHAPTER-IV

REVIEW OF LITERATURE

A comparison study was carried out in the postpartum ward to examine the volume of breast milk produced by moms of premature newborns using the manual technique and the breast pump expression. A randomized control approach was used to choose mothers who gave birth before 34 full weeks of gestation. Interventions: Within an hour of delivery, the infants in the manual breastmilk expression (ME) group started expressing their milk using the Marmet technique, whereas the breast pump milk expression (PE) group started using a manual pigeon breast pump. Based on the data, the median (IQR) EBM volume on days 2 and 7 for the ME and PE groups, which comprised 63 moms in each group, was comparable[29].

The aim of the study is to look into the variables that impact how much milk a woman expresses for her preterm baby, both (1) in the first 10 days and (2) during the duration of the baby's hospital stay. A randomized control experiment was used to choose 62 moms whose preterm infants were born before 34 weeks. Data on milk production until the newborn hospital discharge was submitted by 47 moms. The results highlight the significance of double pumping and prior setting up of milk production and imply that relatively easy, adaptable components can have a positive effect on milk supply in the NICU setting.[30]

A prospective cohort study carried out in 2017-2018 in two Hong Kong public hospitals. There were 821 healthy moms in all who had term babies. This study's main goal was to determine whether breastfeeding self- efficacy and human milk

expressing behaviors are related. Evaluating the impact of breastfeeding self-efficacy on breastfeeding and duration was the secondary goal. Weaning of the infants or a period of six months was used to monitor the participants. A telephone follow-up was used to evaluate the amount and kind of newborn feeding. Greater self-efficacy in nursing is linked to a longer duration of exclusive breastfeeding as well as a decreased risk of expressed human milk feeding. The potential impact of enhancing breastfeeding self-efficacy on the style of human milk feeding warrants further investigation.[31.]

Over the course of eight weeks, the goal of the trial was to raise the baseline amount of EBM in postpartum moms whose newborns were brought to the NICU on day three of life from 15 milliliters per day to 60 milliliters per day. Plan-do-study-act cycles were used to analyze concepts such as counseling sessions and ways to express oneself through the use of charts, booklets, and movies. An increase in BM expression was the result of these modifications. The amount of EBM in postnatal moms whose newborns were admitted to the NICU on day-3 of life was increased from 15ml to 60ml per day during an 8- week period by a systematic approach employing QI techniques.[32]

A study was conducted by Tina Slucher at Jos university teaching hospital in Jos, Nigeria and Tenwek Mission hospital in Bomet, Kenya on the topic of electric breast pump use increases maternal milk volume in African nurseries. The study compared maternal milk volume for mothers of preterm infants in special care nurseries using three approaches. Study participants include 65 mother's whose infants were cared for in 2 sick care nurseries in Kenya and Nigeria. The study explores comparison breast

milk in a qualitative manner. The data were collected through structured questionnaires and observation.The data were analyzed including descriptive and inferential statistics. The findings of the study shows that mother's using electrical breast pump has increased breastmilk volume than mother's using peddle pump or hand expression technique.[33]

A study was conducted by Makiko Ohyama at tertiary perinatal center, Japan on the topic of manual expression and manual electric breast pumping in the first 48 hours after delivery. The study aimed to determine whether utilizing a hospital-grade electric pump was more efficient and comfortable than manual expression in the first 48 hours following birth. Study participants include eleven mothers in maternity ward whose infants were admitted in NICU. The data were collected through structured observation. The data were analyzed using descriptive statistics. The finding of the study shows that total milk yield is 2ml while using manual breast pump method and 0.6ml collected using electric breast pump expression. Also the study encounters that there is decreased pain for electric pump than manual expression.[34]

A study was conducted by Dr. Lalitha Umesh at department of obstetrics and gynecology, Sri Siddhartha institute of medical sciences, Tippagondenahalli, Karnataka on the topic of breast pump versus manual method for expression of breast milk in females delivering preterm babies during first postnatal week. The study aimed to compare and evaluate the breastmilk volume in breast pump expression and manual method in mothers of preterm infants. Study participants include 85 females admitted in the hospital. A randomized controlled study explores the qualitative and quantitative aspects of breastmilk volume using manual method and breast pump

expression method. The study assessed the females using observation technique by the help of pigeon manual breast pump and marmet technique. The study shows that cumulative milk volume was 846(573, 1007) & 735(595,997) in the breastmilk and manual expression. The finding of the study shows electrical breast pump has increased breastmilk volume than manual method of expression.[35]

The descriptive study was conducted by Xifang Ru at Peking university first hospital Beijing, china on the topic of Successful lactation achieved by mothers of preterm infants using exclusive pumping. The study aimed to examine the nutritional content of preterm newborn milk produced by moms using hospital-grade breast pumps.The study comprises thirty moms whose preterm infants weighed less than 500 grams or had a gestational age of fewer than 32 weeks.In addition to a pumping diary and questionnaire filled out by mothers, the data were gathered by observation. Most preterm infant mothers can effectively complete lactation if they use a hospital-grade pump and pump more than or equal to six times per day.[36]

A Descriptive study was conducted by Mary M Lussier at inner city regional center and level IV- inner city NICU located within same building on the topic of daily breastmilk volume in mothers of very low birth weight neonates : a repeated-measures randomized trial of hand expression versus electrical breast pump expression. The study sought to determine the volume of breastmilk produced each day by moms of newborns with extremely low birth weights. Mothers who delivered babies weighing less than 1500 grams and at a gestational age of fewer than 32 weeks are eligible to participate in the study. A randomized explores qualitative and quantitative aspects of breast milk volume utilizing both manual and breast pump expression. The study assessed the mothers. Using observation method. Data were analyzed including descriptive statistics (SPSS version) Findings of the study shows

that most of the mothers choosed to continue using electrical pump for expression than hand expression due to increased breast milk output.[37]

A study was conducted by Amanpreet Sethi at level – III NICU of a tertiary care hospital on the topic of quality improvement initiative: improving exclusive breastfeeding rates of neonates. In addition to assessing the percentage of moms who express breast milk within three hours of giving birth, the study sought to raise the percentage of newborns receiving their mothers' milk from the present rate of 12.5% to 30%. Additionally, the percentage of moms who express breastmilk within three hours of giving birth was to be assessed. The study participants include mothers of preterm babies who has a chance of 7 days of hospital stay. With the assistance of a medical team, data was gathered using a structured observation method. Findings of the study was on the initial observation phase the out of 8 mothers only 1 mother is able to express properly on the day 1.Within three hours following the intervention phase, 100% of the mothers expressed. The proportion of mothers climbed to 86.6% at the conclusion of the research.[38]

CHAPTER-V
RESEARCH METHODOLOGY

RESEARCH METHODOLOGY

This chapter deals with the methodology selected for the study. It indicates Source of data, research approach, research design, settings, variables, population, sample and sample size, sampling technique, sampling criteria, data collection tool, method of data collection, plan for data analysis.

A research study's methodology describes how to approach for an empirical investigation is generally organized, as well as how accurate and trustworthy the data for the subject being studied are obtained.

RESEARCH APPROACH

The methodology of the study deals with the data, what to collect and how to analyze it. It also raises potential conclusion derived from the data. The evaluative strategy was deemed the most suitable research approach for the current study, given the nature of the topic chosen for the investigation and the tasks to be completed.

RESEARCH DESIGN

A research design encircle the process and approach used in carrying out scientific research. Research design selected for the present study is non-experimental comparative research design.

SETTING

Setting refers to the actual site and circumstances used for data collecting during a study. Setting refers to the accurate location where information is gathered.

The investigation is scheduled to take place in NICU at R.L. Jalappa Hospital and Research Center, Tamaka, Kolar.

VARIABLES

Variables are the attributes or qualities of an event, thing, or person that are changeable in numbers or values .Researchers frequently work with variables. As the name suggests , a variable is anything that changes.

Independent variables: Human milk can be expressed manually or with a breast pump

Dependent variables: Mother's breast milk volume.

POPULATION

A population is the totality of cases that meet the researcher's criteria and that the researcher is interested in.

The study population consists of all moms whose preterm newborns were hospitalized to the NICU.

SAMPLE SIZE

A sample is a portion of the whole population that is used in a study. In this study the sample consist of 60 preterm neonatal mothers 30 in manual expression of breast milk and 30 in breast pump milk expression admitted in NICU at R.L. Jalappa Hospital and Research Center, Tamaka, Kolar.

SAMPLE TECHNIQUE

The process of choosing a subset of the target population to reflect the total population is known as sampling. The sample where choosen by using randomized sampling technique.

SAMPLING CRITERIA

- **INCLUSION CRITERIA**

    1. Gestational age of below 32 weeks.
    2. Babies advised for NG tube feeding and Palada feeding.
    3. Preterm neonates admitted in NICU.
    4. Babies who got admitted before 24 hours of delivery.

- **EXCLUSION CRITERIA**

    1. Preterm neonates who are critically ill.
    2. Mothers who starts direct breast feeding before 7 days of postnatal period.

DATA COLLECTION AND TOOL

Section A: Socio -demographic variable - Gestational age, Birth weight, Gender, Apgar score, Age of mother, Mother's medical condition.

Section B: Score sheet of milk volume assessment.

METHOD OF DATA COLLECTION

Self –administration was used to gather the data in the subsequent steps, which comprises

Step 1: The study was conducted with approval from the Institute's ethics committee.

Step 2: The hospital administration was consulted and provided formal written consent.

Step 3: Written consent will be taken from the mothers of preterm babies.

Step 4: By using randomized sampling technique, 60 preterm neonatal mothers were selected based on demographic variables.

Step 5: On the day when the information was gathered, investigators presented to the mothers of premature babies and guided the study's objectives, and subsequently informed consent was taken from mothers of preterm babies by using structured knowledge questionnaire method.

Step 6: Measure the volume of the breast milk by manual expression and breast pump expression are assessed for 15 days constantly in the morning, afternoon and evening.

PLAN FOR DATA ANALYSIS

The data analysis was done by the following steps:

1) Distribution of socio demographic factors in terms of frequency and percentage.

2) Student T-test is used to compare.

3) Chi-square test used for association between levels of feeding pattern with socio-demographic variables.

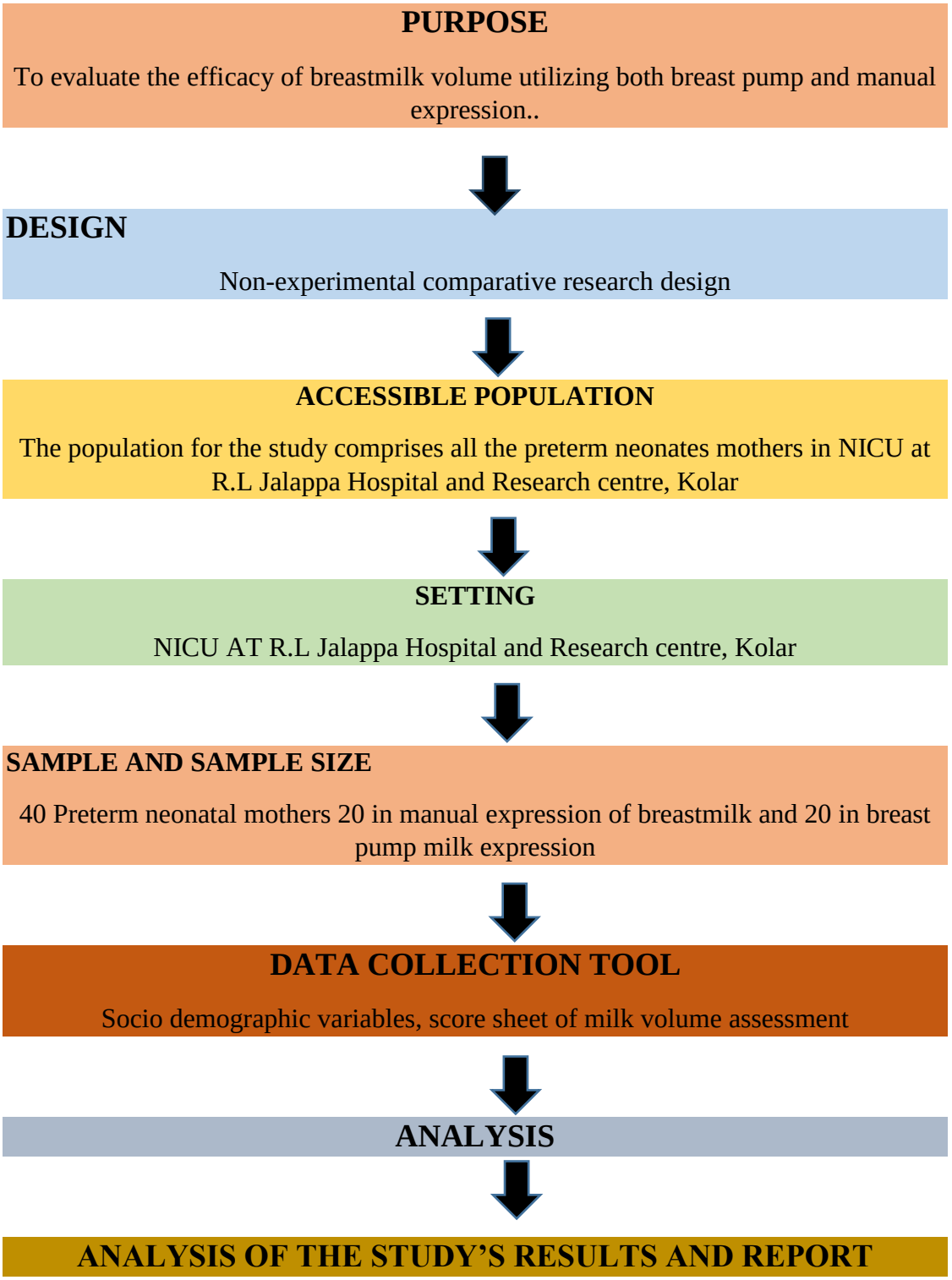


Figure 1: Diagrammatic depiction of the study plan

CHAPTER – VI

ANALYSIS

CHAPTER -VI

DATA ANALYSIS AND INTERPRETATION

The analysis and interpretation of the data at R.L Jalappa Hospital and Research Center, Kolar , to determine the volume of breast milk produced by moms of premature newborns using both manual and expression are covered in this chapter.

The data is obtained from 60 preterm neonatal mothers 30 manual expression of breast milk and 30 breast pump expression admitted NICU at R L Jalappa Research center, Kolar.The data was processed and analyzed using

Data analysis defined as the systematic organization and synthesis of research data.

OBJECTIVES OF THE STUDY

1. To assess the breast milk volume among mothers of preterm babies by manual method of expression.
2. To assess the breast milk volume among mothers of preterm babies by breast pump method of expression.
3. To compare the breast milk volume among mothers of preterm babies with manual and breast pump method of milk expression.

ORGANIZATION OF STUDY FINDINGS

The analyzed data is organized and presented under the following sections.

Section I

This section contains information on the socio demographic traits of research participants.

Section II

This section addresses the volume of breastmilk expressed manually and using a breast pump by moms of premature infants.

1. The volume of breast milk expressed manually by mothers of premature infants.
2. The volume of the breast milk produced by mothers who express a breast pump and have preterm babies.

Section III

Findings related to correlation between manual expression and breast pump expression.

SECTION – 1

The section deals with the data pertaining to socio-demographic characteristics of study participants.

Table-1: Frequency and percentage distribution socio-demographic variables of mothers

N=60

		CONTROL		EXPERIMENTAL	
Sl. no	**Variables**	**Frequency**	**Percentage**	**Frequency**	**Percentage**
1.	**Gestational age of mother**				
	32 weeks	4	20	6	30
	31 weeks	4	20	2	10
	30 weeks	7	35	5	25
	29 weeks	5	25	7	35
2.	**Age of mother**				
	18 – 22 years	3	15	3	15
	20 – 26 years	9	45	9	45
	26 – 30 years	7	35	6	30
	>30 years	1	5	2	10
3.	**Gender of the Baby**				
	4.1) Male	11	55	12	80
	4.2)Female	9	45	18	40
4.	**Birth weight of the baby**				
	1200 -1500 gm	10	50	9	45
	1501 - 1800 gm	9	45	8	40
	1801 - 2000gm	1	05	3	15
5.	**Education of the mother**				
	High School	7	35	7	35
	PUC	5	25	2	10
	Graduates & Above	6	30	9	45
	Illiterate	2	10	2	10
6.	**Occupation of the mother**				
	7.1)Home maker	15	75	15	75
	7.2)Agricultural field	00	00	00	00
	7.3)Private employee	2	10	1	05
	7.4)Government employee	3	15	4	20

As illustrated in Table - 1 majority of the mothers gestational age were 30 weeks in control group and 29 weeks in experimental group, with their age 22 – 26 years in control group and 26–30 years in investigational group. Majority of their babies were males with 1200-1500gm in both the groups. Majority of their education was high school in control group and graduate in experimental group with their occupation was Home maker in both the groups.

SECTION - II

i. Breast milk volume among the moms of premature neonates by Manual method of Expression

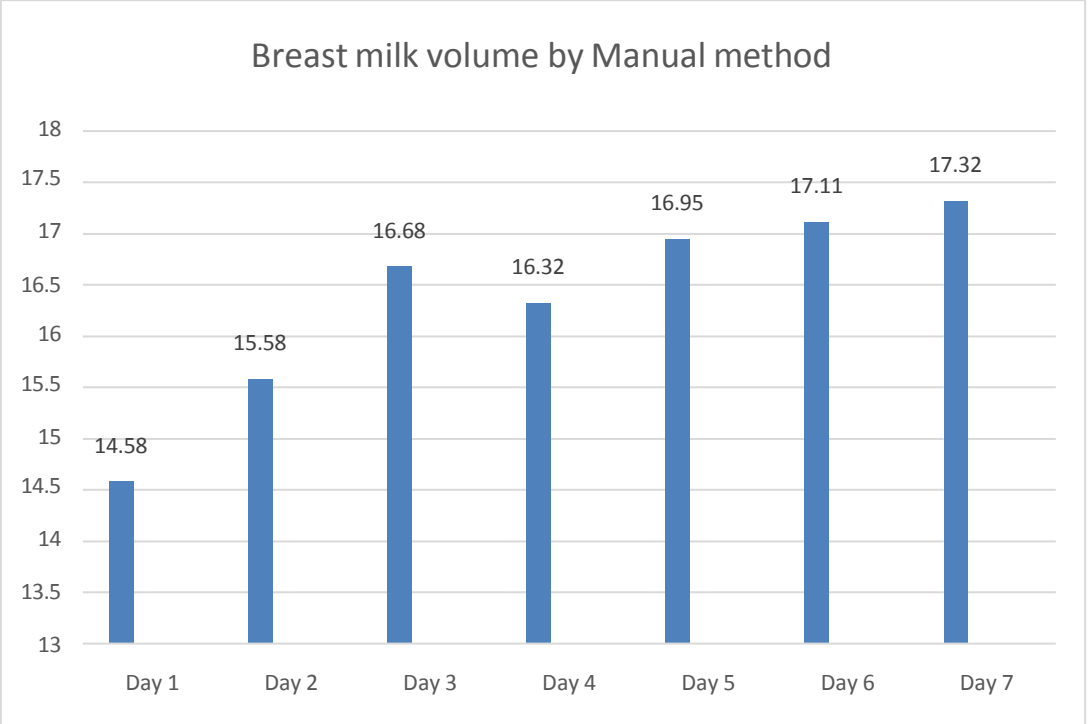


Figure 2: Breast milk volume by Manual Method

In Manual method of breast milk expression the milk out put increases gradually. On the first day of expression of breast milk was 14.58 ml and the last day were 17.32 ml.

ii. Breast milk volume among the mothers of preterm babies by breast pump method expression

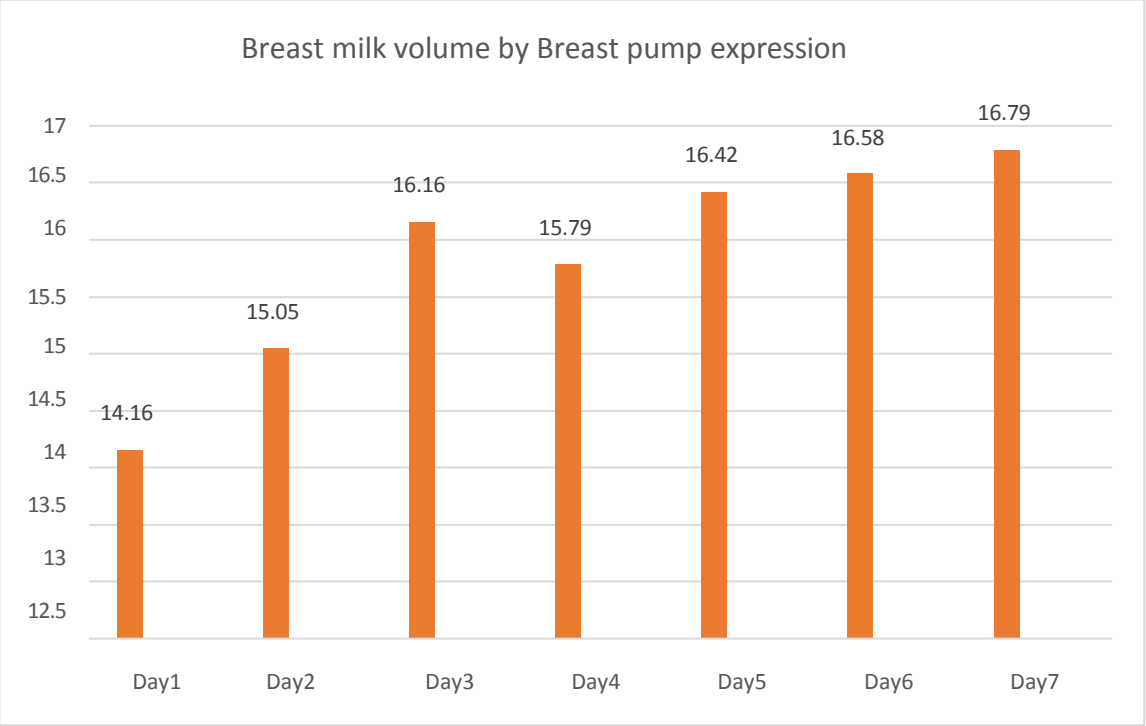


Figure 3 : Breast milk volume by Breast Pump Method

On Breast pump expression there is a slight increase and there is no constant decrease milk expressed. On the first day the breast milk volume was 14.16 ml and 16.79 ml were the last day.

Section- III

Findings related to correlation between by hand expression and electric pump expression.

Table2: Comparison on breast milk and manual expression method among mothers

N=60

Method	**MEAN±SD**	**df**	**Pvalue**
Manual	16.36±0.90	39	0.092
Breast Pump	15.85±0.76		

As shown in table 2 ,it is evident that there is no remarkable difference between manual method and breast pump expression. Hence both the methods can be chosen as per the availability and comfort of the mother.

CHAPTER-VII

DISCUSSION

Discussion

This chapter presents the major findings of the study and discusses them in relation to similar studies conducted by other researcher.

The Aim of the study was to asses the breast milk volume among the mothers of preterm babies with manual expression and breast pump expression of sample size 60 at NICU of RLJH ,Kolar. Data collection and analysis were carried out based on the objectives of the study.

OBJECTIVES OF THE STUDY

1. To assess the breast milk volume among mothers of preterm babies by manual method of expression.

2. To assess the breast milk volume among mothers of preterm babies by breast pump method of expression.

3. To compare the breast milk volume among mothers of preterm babies with manual and breast pump method of milk expression.

NULL HYPOTHESIS:

$H0_1$: There will be no significant difference in breast milk volume on manual verses breast pump method of breast milk expression.

$H0_2$: There will be no significant difference among mothers of preterm baby with a social demographic variables.

MAJOR FINDINGS OF THE STUDY

Socio demographic variables:

Majority of the mothers gestational age were 30 weeks in manual group and 29 weeks in breast pump group, with their age 22-26 years in manual group and 26-30 years in breast pump group.Majority of their babies were males with 1200-1500 gm in both the groups.Most of the mother's education was high school in manual group and graduate in breast pump group with their occupation was home maker in both groups.

Human Milk Volume Among The Mothers Of Preterm Babies By Manual Method Of Expression

In Manual method of breast milk expression the milk output increases gradually. On the first day of expression the breast milk was 14.58 ml and the last day were 17.32 ml.

Breast Milk Volume Among The Mothers Of Preterm Babies By Breast Pump Expression

On Breast pump expression there is a slight increase and there is a constant increase in milk expression. On the first day the breast milk volume was 14.16 ml and 16.79 ml were the last day.

Comparison Of Both Breast Pump And Manual Expression

It is evident that there is no remarkable difference between manual method and breast pump expression.Student 't' test used to compare the quantity of the milk between manual method and breast pump method. In both methods there is gradual increase in the quantity of milk day by day.Hence both the methods can be chosen as per the availability and comfort of the mother.In this study though there is increase in

quantity of milk in both methods but the mothers were comfortable with manual method of milk expression.

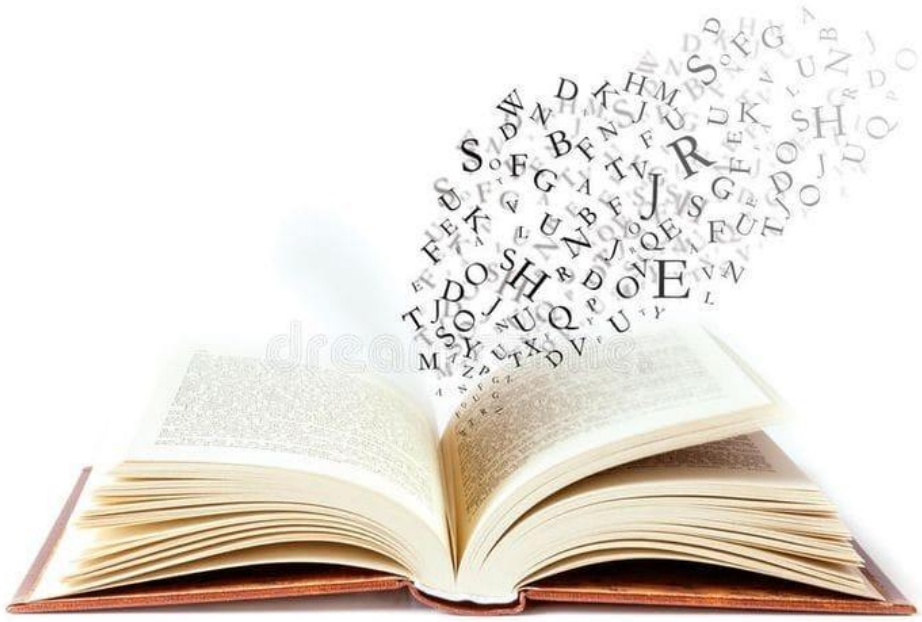
Human formula milk is the desirable way for giving growth and nutrition for the baby. Expressing milk by manual and breast pumping will allow to maintain milk production and to provide milk adequately to the baby. In this analysis, the milk should be expressed either by manual or electric pump method, the accessibility of progressive expressed breast milk volume throughout the initial postpartum week was comparable. Only one study was found to be similar which was conducted in India.[39]

However, some of the studies shows that elevated volume of human milk without an interruption electric pump contrast to by hand expression and moms favored electric pump method in initial postpartum week and by hand method afterwards. The Electric pump method was found to be superior compared to the Hand expression method for producing adequate Expressed human formula milk in natal mater of Very less birth weight infants.[40-41]

Most of the immature newborn birth mother who used a pump of hospital quality with a forcing frequency of ≥ 6 times/d could gain full nursing effortlessly.[42] Hence early expression will be very useful among preterm mothers to achieve adequate and exclusive breast feeding.

CHAPTER – VIII

CONCLUSION



CONCLUSION

The study's main conclusions, interpretation, limitations, recommendations, and suggestions are presented in this chapter. In the NICU of R.L Jalappa Hospital and Research center, moms of preterm infants were to have the breastmilk volume measured.

It is clear from the overall study that there is no discernible difference between the electrical breast pump and the manual way of expressing milk.

IMPLICATIONS OF THE STUDY

The following domains are affected by the study's findings. The following headings contain discussions of the implications:

I. Nursing practice
II. Nursing education
III. Nursing research
IV. Nursing administration

Nursing Practice

Breast milk is the optimal way for enhancing growth and nutrition for the baby. Breast pump will allow to maintain milk production and to provide the milk while the mother is not near.

Nursing Education

1) Educate about the importance of early breast feeding using breast pump so as to keep the acute or chronic illness away.
2) Educate related to relevance of adequate breastfeeding especially for preterm babies.

Nursing Research

1) Early and adequate breastfeeding can reduce disease and boost up immunity.
2) Breast feeding using breast pump produces optimal amount of breastmilk contributes to growth and development of the baby.

Nursing Administration

Breast pump is very useful in the case of working mothers because it can produce good amount of milk and it is very convenient to use.

LIMITATIONS

The research is restricted to,

- Preterm neonates with gestational age between 32-36 weeks.
- Preterm neonates admitted in NICU in RL Jalappa Hospital and Research Center, Kolar.
- Mothers those who are not convenient with the usage of breast pump.
- Babies who are on Nil per oral.

RECOMENDATION FOR THE STUDY

- Focus on multiple hospital rather than a single hospital both in private and public hospitals.
- The study should be centered on working mothers.
- Study can be done for the mothers who separated from the neonates.
- Study can be done for more samples generalize findings.
- Mothers who have very low birth weight babies.

CHAPTER-IX

SUMMARY

SUMMARY

The present study was "**A comparative study to assess the breast milk volume among the mothers of preterm babies with manual expression and breast pump expression at R.L Jalappa Hospital and Research Centre, Kolar, Karnataka.**" With the following objectives:

OBJECTIVES

1. To assess the breast milk volume among the mothers of preterm babies by manual method of expression.
2. To assess the breast milk volume among the mothers of preterm babies by breast pump of expression.
3. To compare the breast milk volume among the mothers of preterm babies with manual and breast pump method of milk expression.

HYPOTHESIS

$H0_1$: There will be no significant difference in breast milk volume on manual verses breast pump method of breast milk expression.

$H0_2$: There will be no significant difference among moms of premature baby with a social demographic variables.

The study made use of quantitative research approach. The population in the study was mothers of preterm babies in NICU at R.L Jalappa Hospital and Research Centre, Kolar, Karnataka.

Random sampling technique is adopted to select 40 study participants. The data were generated using structured questionnaire. The questionnaire consisted of,

Section I: Socio demographic Variables

MAJOR FINDINGS OF THE STUDY

Socio demographic variables:

Findings showed that out of 40 sample majority (31.6%) of gestational age of the mother between 34-36 weeks. Out of 40 majority (47.4%) of age of the mother between 20-26 years. Out of 40 majority (42.1%) of the parity were first and second baby. Out of 40 majority (57.9%) of gender of baby were males. Out of 40 majority (47.4%) birth weight of the baby were 1001-1500 gram. Out of 40 majority (36.8%) of education of the mother were higher school. Out of 40 majority (78.9%) of occupation of the mother were homemaker.

Human Milk Volume Among The Mothers Of Preterm Babies By Manual Method Of Expression

In Manual method of breast milk expression the milk output increases gradually. On the first day of expression the percentage was 14.58% and the last day were 17.32%.

Breast Milk Volume Among The Mothers Of Preterm Babies By Breast Pump Expression

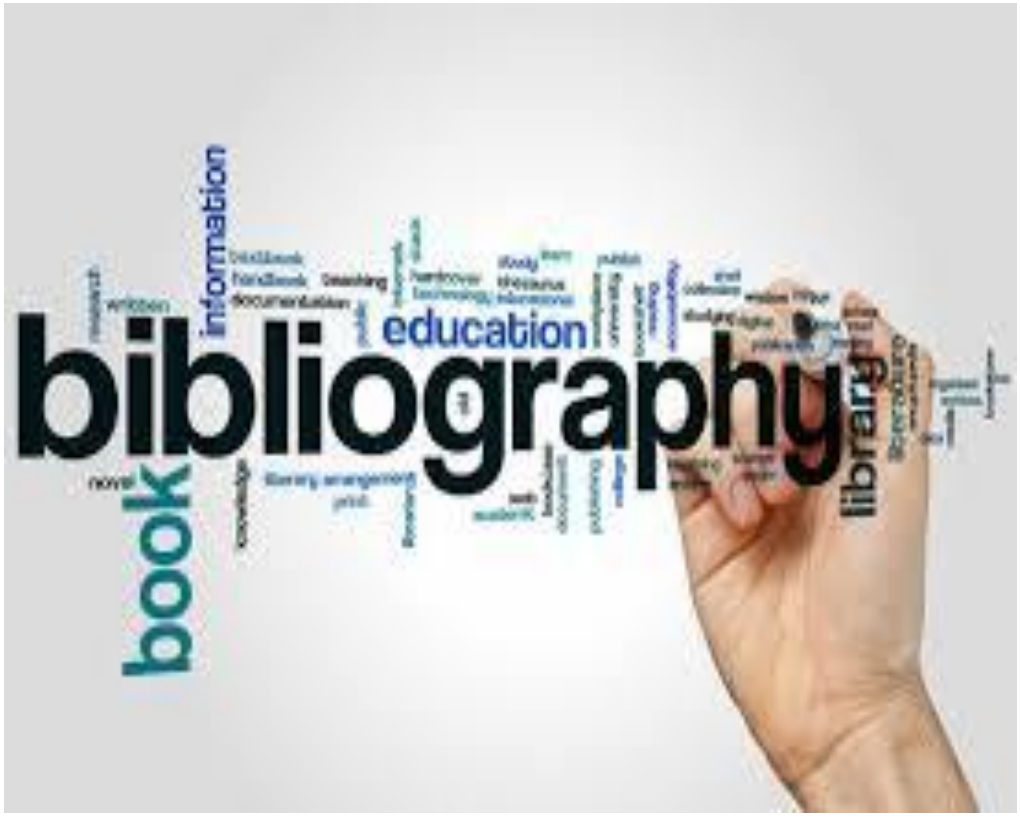
On Breast pump expression there is a slight increase and there is a constant increase in milk expression. On the first day the percentage was 14.16 % and 16.79% were the last day.

Comparison of Both Breast Pump And Manual Expression

By comparing manual and breast pump milk expression results shows that there is a gradual increase in the volume and found similar results in both the methods.

CHAPTER – X

BIBLIOGRAPHY



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CHAPTER – XI

ANNEXURE

Annexure -1

Institutional ethics committee (IEC) Approval letter

Sri Devaraj Urs College of Nursing, TAMAKA, Kolar-563 103.

(Affiliated to RGUHS, Bangalore and Recognized by KNC, Bangalore & INC, New Delhi)
ISO 9001: 2015 Certified & NAAC Accredited
Phone: 9480880802 E-mail: sduconson@yahoo.com, Website: sducon.ac.in

28-07-23

Review/ Meeting Minutes No of IEC 02

The meeting of the IEC for the year 2022-2023 was held at SDUCON Council hall on 28/07/2023 at 10:30am onwards under the chairmanship of Dr. Prashanti N, Chairperson, and Institutional Ethics Committee. Dr. Lavanya Subhashini, Member Secretary welcomed committee members, following members attended the meeting

Members Present

Sl. No.	Names	Position in the committee	Signature
1	Dr. Prasanthi Natala	Chairperson	
2	Dr. Prabhakar	Member	—
3	Dr. Dayanand	Member	—
4	Dr. Asha . B	Member	28/7/2023
5	Mr. Ganesh	Member	
6	Achary Chinmayananda Avadutha	Member	
7	Dr. Lavanya Subhashini	Member Secretary	

28/7/23
Member Secretary
MEMBER SECRETARY
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

Chairperson
CHAIR PERSON
ETHICS COMMITTEE
SRI DEVARAJ URS COLLEGE OF NURSING
TAMAKA KOLAR - 563103.

3	IEC/ 121/2023	Dr G. Vijayalakshmi Principal Co- investigator: Mrs Rashmi A Assistant professor	Effectiveness of Peer Learning versus Traditional Learning on Clinical Performance among first year BSc Nursing students at selected colleges, Kolar.	Accepted	Refer Minutes
4	IEC/122/2023	Dr. Lavanaya subhashini Vice Principal SDUCON Mrs. Sumalatha Associate Professor	A Comparative Study to Assess The Breast Milk Volume Among the mother's of Preterm Babies with Manual Expression and Breast Pump Expression at R L Jalappa Hospital and Research Center, Kolar"	Accepted	Refer Minutes
5	IEC/123 /2023	Prof Jairakini Aruna HOD Dept. of MHN Mrs. Ramya Assistant professor	Effectiveness of Life Skill Interventions in improving the quality of life among Alcohol Dependence patients at a selected hospital, Kolar.	Accepted	Refer Minutes
6	IEC/ 124/2023	Dr. Malathi K V HOD. Dept. of CHN Mrs Komala Devi R	Effectiveness of honey with papaya seeds in Managing worm infestation among primary School children's at selected schools of Kolar Taluk.	Accepted	Refer Minutes
7	IEC/ 125 /2023	Mrs. Sumana Yesu Priya Assistant professor Dept. of CHN	A study on risk assessment and management of dental carries among school children in selected schools of Kolar Taluk	Accepted	Refer Minutes

Annexure -2

Letter requesting permission for conducting research study

PERMISSION LETTER TO CONDUCT STUDY

To,

The Medical Superintendent,
R.L Jalappa Hospital & Research Centre
Tamaka, Kolar-563103

Respected Sir,

Subject: Requesting permission to conduct research study reg:

With respect to the above subject, we the students of 3rd year BSc Nursing of Sri Devaraj Urs College of Nursing, and 4th group of research would like to conduct our research study on **Title: "A comparative study to assess the breast milk volume among the mothers of preterm babies with manual expression and Breast pump Expression at R.L Jalappa Hospital and Research Centre,Tamaka, Kolar, Karnataka"** under the guidance of Dr. Lavanya Subhashini, Vice-Principal and HOD, Dept. of Child Health Nursing and under the Co-guidance of Mrs.Sumalatha C V, Assistant Professor, Dept.of Child Health Nursing. With regard to above we kindly request you to grant permission to collect data in NICU without disturbing Hospital routines and comfort of the baby. Kindly consider this letter and do the needful.

Thanking You.
Forwarded for kind approval

Guide: Dr.Lavanya Subhashini
Co-guide: Mrs.Sumalatha C.V

Yours Sincerely,

Ms. Angel Mariya Shaji
Ms. Angel Sara Varughese
Ms. Ani Abraham
Ms. Anjitha Madhu
Ms. Anjitha T Reji
Ms. Chandhana C
Ms. Linta Jacob
Mr. Sanjaykumar B L
Ms. Sherin Mariyam Joseph
Ms. Sneha Balakrishnan
Mrs. Saraswathi

Encl:

1. Synopsis copy with informed concent
2. Ethical clearance certificate
3. Data collection tool.

Copy to:

1. HOD, Department of Pediatrics, SDUMC
2. CNO, RLJH &RC.

Permitted

Forwarded to M.S. RLJH&RC for a request to permit students to collect data.

Principal
Sri Devaraj Urs College of Nursing
Tamaka, Kolar-563103

Annexure -3

Subject Data Sheet

Socio Demographic Variables

Name of the Mother: **Phone Number:**

UHID Number: **Date of Admission:**

1.Gestational age of the Mother

a)36-38 weeks

b)34-36 weeks

c)32-34 weeks

d)28-32 weeks

2. Age of the Mother

a) 18-22 years

b) 22-26 years

c) 26-30 years

d) >30 years

3. Parity

a) First baby

b) Second baby

c) Third baby

d) Above third baby

4. Gender of the baby

a) Male

b) Female

5. Birth weight of the Baby

a) < 1000 gram

b) 1001 – 1500 gram

c) 1501-2000 gram

d) 2000 – 2500 gram

e) > 2500 gram

6. Education of the Mother

a) High school

b) PUC

c) Graduates and above

d) Illiterate

7. Occupation of the Mother

a) Homemaker

b) Agricultural field

c) Private employee

d) Government employee

SAMPLE -1, MANUAL METHOD

Name of Mother: **Address:**

Age of the Mother: **UHID No:**

DAY / FREQUENCY	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10	DAT 11	DAY 12	DAY 13	DAY 14	DAY 15
FIRST FEED															
SECOND FEED															
THIRD FEED															
FOUR -TH FEED															
FIFTH FEED															

SIXTH FEED															
SEVEN-TH FEED															
EIGHTH FEED															
NINETH FEED															
TENTH FEED															
TOTAL															

SAMPLE -1, BREAST PUMP METHOD

Name of Mother: **Address:**

Age of the Mother: **UHID No:**

DAY / FREQ-UENCY	DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7	DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14	DAY 15
FIRST FEED															
SECOND FEED															
THIRD FEED															
FOURTH FEED															
FIFTH FEED															

SIXTH FEED															
SEVENTH FEED															
EIGHTH FEED															
NINETH FEED															
TENTH FEED															
TOTAL															

Annexure-4

Informed Consent Form

Written Informed Consent Form

Study Title: "A COMPARITIVE STUDY TO ASSESS THE BREAST MILK VOLUME AMONG THE MOTHER'S OF PRETERM BABIES WITH MANUAL EXPRESSION AND BREAST PUMP EXPRESSION AT RL JALAPPA HOSPITAL AND RESEARCH CENTER, KOLAR"

Code Number:

I confirm that I have read and understood the information given to me about this study and my role in it. I had opportunities to ask questions and my questions have been answered to my satisfaction.

Or

I confirm that all information about this study and my role in it has been read / explained to me by a member of the investigating team in a language that I understand. I had opportunities to ask questions and my questions have been answered to my satisfaction.

b) I understand that my participation in this study is voluntary and that I am free to withdraw from the study at any time, without giving any reason and legal rights being affected.

c) I understand that my identity will not be revealed in any document or publication.

d) I agree not to restrict the use / publication of any data or results that arise from this study provided such use is only scientific purposes.

e) I am aware that by agreeing to my participation in this investigation, I will have to more time for training and assessments by the investigating team and that these assessments will not interfere with the benefits that I am entitled to or my daily routine.

f) I give my consent, voluntarily to take part in this study. I also agree for the investigator to record the observation / interview sessions whenever they are held.

Signature (or thumb impression) of the study participants / Legally Acceptable Representative:

Name of the study participant:

_____Date:__/__/____ Place:

Study participant signature:

_____

Name of the investigator: _____Date:__/__/____Place:

Study investigator's Signature:_____

Annexure - 5

Photographs of Data Collection