International Journal of All Research Education and Scientific Methods (IJARESM),
ISSN: 2455-6211, Volume 13, Issue 1, January-2025, Available online at: www.ijaresm.com

Impact of Breast-Feeding Pattern on Physiological Outcome of New-Borns in a Selected Hospital at Aluva

P. A. Shigy[1], Prof. Dr. Kavithamol[2]

[1]PhD Scholar; Malwanchal University, Indoor
[2]Research Supervisor; Malwanchal University, Indoor

----------**********----------

ABSTRACT

BACKGROUND OF THE STUDY
Breast milk is a complete and best planned food for a new born infant. The shaastras call it "peeyusha" (equal to amrita) and western science uses the word "colostrum". It is the infant's first immunization. Research studies have demonstrated the significant nutritional, developmental, psychological, Immunological, Social, Economic and Environmental benefits of breastfeeding. Even through there is lot of advantages to the breast milk, the breast-feeding pattern of mothers should be good to get this benefit to the baby.

The breast-feeding pattern includes early initiation, type of feeding frequency and duration of each breast feeding, unrestricted or demands feeding and rooming in. These are of prime importance for the health and adjustments of new born to the extra uterine life and prevention of problems related to breast feeding. So, it should be initiated within the first half an hour after birth. But customs, Superstition, traditions and ignorance of the mother, sometimes deprive the child from getting this benefit. In some communities' pre-lacteal feeds is considered mandatory to give the child certain ritual feeds like water and honey. Even though there is lot of awareness at the periphery about the advantages of breastfeeding some of the health professionals not able to believe fully the facts about breastfeeding and they are advising lactogen feeds also. All these practices regarding breastfeeding have great impact on the life of a new-born, especially in the first few days.

Breastfeeding is often associated with certain neonatal problems in the first few days after birth. When compared with formula – fed neonates, breastfed neonates lose more weight, take fewer calories, gain weight more slowly, and have higher serum bilirubin levels during the first week of life. Recent studies have suggested that many of these problems can be ameliorated by increasing the frequency of sucking AAP policy statement recommendations show that if the frequency of feeding approximately 8 times or more per 24 hours infants elimination pattern are expected to be 3 – 5 urines and 3 – 4 stools per day by 5 -7 days of age. Weight loss greater than 7 % from birth weight indicates possible breastfeeding problems.

The successfully fed child is one, who sleeps well, awakes, feeds with good appetite and is satisfied, and who lies awake for a while and goes to sleep again. According to American Academy of Paediatrics policy statement, all paediatricians and other healthcare professionals should promote initiation of breastfeeding at the earliest and should observe breastfeeding position, latch, milk transfer and hydration, elimination patterns and jaundice in new-born at least twice daily. So, the observation of breast-feeding pattern of mother and the new-born condition is important to prevent early neonatal problems and thus to reduce neonatal mortality rate. The aim of the present study is to determine the impact of breastfeeding pattern on physiological outcome of new-borns in the first few days.

Results: The breast-feeding pattern was 'good' among (65%) and satisfactory' among 35% of mothers. The physiological outcome variables of new-borns were 'satisfactory' in all the new-borns except two outcome variables such as level of bilirubin and loss of weight. The level of bilirubin and loss of weight < 7% of birth weight was 'un satisfactory' among 2.5% of new-borns on 3rd day. The number of meconium stools and number of voids/ 24hrs was 'un satisfactory' among 7.5, 2.5% on day 1 and day 2 and 45%, 22.5% on day 1 and day 2 respectively. There was a significant positive correlation between breast feeding pattern and number of meconium stools/24hrs f = .376 There was a significant positive correlation between breast feeding pattern and number of voids/24hrs. J = 0.333($p < 0.05$). There was a significant positive correlation between breast feeding pattern and loss of weight < 7% of birth weight. J = 0.375($P < 0.05$). There was a significant positive correlation between frequency of breast feeding and loss of weight <7% of birth weight. J = 0.548($P < 0.01$). There was a significant negative correlation between breast feeding pattern and respiratory rate. J = - 0.326($P < 0.05$). There were other significant positive correlations were found between the outcome variables. The findings were: Significant positive correlation between number of voids /24hrs and skin turgor. f = 0.412($P < 0.01$). Perfect positive correlation was found between level of bilirubin and loss of weight <7% of birth weight. J = 1($P < 0.01$).

There were other significant positive correlations were found between the outcome variables. The findings were, Significant positive correlation between number of voids /24hrs and skin turgor f= 412(P<0.01). Perfect positive correlation was found between level of bilirubin and loss of weight 7% of birth weight. f = 1(P < 0.01). Significant positive correlation between respiratory rate and level of bilirubin. f = 698(P < 0.01). Significant positive correlation between respiratory rate and loss of weight 7% of birth weight. f = 698(P < 0.01). Significant positive correlation between number of meconium stools /24hrs and number of voids /24hrs. f= 0.447(P < 0.01). Significant positive correlation between skin turgor and level of bilirubin=.370 (P<0.05). There was no significant association between breast feeding pattern and the selected baseline variables of mother such as age, education, gravida, religion, area of residence, monthly income.There was no significant association between neonatal physiological outcome variables and baseline variables such as sex, birth weight, gestational age in weeks and blood group of mothers.

Conclusion: Findings of the study have shown that breastfeeding pattern had significant impact on physiological outcome variables of new-born and also revealed that there was significant relationship between the outcome variables. Hence it can be concluded that good breastfeeding pattern helps the new-born to maintain normal bowel and bladder pattern, hydration, normal body temperature, and reduces the level of bilirubin in the first few days.

Keywords: Breastfeeding pattern, physiological outcome, new-born

INTRODUCTION

Breast milk is the best food available and is tailor made to suit the new-borns needs. Breast milk is the first and the precious gift of love and affection of a mother to her baby. From the very past in ancient India breast milk is regarded as the greatest power, the blessing and a sort of happiness for the baby.

Mother's milk is a complete planned food for a new born infant. It is a thick and yellow coloured, the Shastras call it "peeyusha" (equal to amrita, the liquor of life) and western science uses the word "colostrum". It is the infant's first immunisation. Research studies has demonstrated the significant nutritional, developmental, psychological, immunological, social, economic and environmental benefits of breastfeeding. Epidemiological research has provided evidence specially related to infant's health, that breastfeeding may decrease the incidence, or severity or both of diarrhoea, respiratory infection, protection against sudden infant death syndrome, enhance cognitive development, reduces mortality and morbidity rate of neonates worldwide. Even though there is lot of advantages to the breast milk the breast-feeding pattern of mothers should be good to get this benefit to the baby.

The breastfeeding pattern of the mother and the practices of the community have great influence on the nutritional and health status of infants. The breastfeeding pattern includes early initiation, type of feeding, frequency and duration of each breast feeding, unrestricted or demand feeding and rooming in. These are of prime importance for the health and adjustment of new-borns to the extra uterine life and prevention of problems related to breastfeeding. So, breastfeeding should be initiated within the first half an hour after birth. For most of the new-born's breastfeeding makes the difference between life and death and it is infants 'passport to life'. But customs, superstition, traditions and ignorance sometimes deprive the child from getting this benefit.

"Exclusive breastfeeding is every child's first right." It means that the infant receives only breast milk from mother or a wet nurse or expressed breast milk and no other liquids or solids, with the exception of drops or syrups consisting of vitamin and mineral supplements or medicine. It is essential up to four months of life for infection control and improving nutritional status in developing country like India as an effective intervention to reduce child mortality. Exclusive breastfeeding can save many lives by preventing malnutrition and reducing the risk of infections and hypothermia. A cross-sectional study on breastfeeding behaviour was conducted among 314 urban and rural mothers of Latur and Osmanabad district of Maharashtra, and it was found that the exclusive breastfeeding practice was 40% among and was not adequate. The timing of initiation has also an impact on new-borns' life. Colostrum is the milk secreted by the breast in the first 42 to 72 hours. It is referred as the new-borns' first vaccination. It is rich in fat, immunoglobulins, macrophages, bifidus factor and vitamin A. During the first feed the baby receives colostrum-'the liquid gold'. It stimulates the baby to have bowel movements. So that meconium is cleared quickly from the gut. This helps to get rid of the substances in the new-borns body that produce jaundice in the first few days. Timely initiation of breastfeeding also helps the production of milk for the next feed, promotes bonding between mother and child, helps in early involution of uterus, contraception, and prevention of ovarian cancer. A study conducted to assess the knowledge, attitude and practice of mothers about breastfeeding in Bihar reveals that about 29% of the mothers started breastfeeding within 24 hours and the proportion was almost same in urban and rural area. About 66% discarded the colostrum and the main reason for this was the advice of elders that colostrum is not good for the health of the new-born. In Karnataka, mothers delay the first feed for three days and this can cause breast engorgement by fourth or fifth postnatal day. In some communities pre lacteal feeds is considered mandatory to give the child certain ritual feeds like water & honey. They should be discouraged as these non-sterile and contaminated feeds may cause infection and life-

threatening conditions like neonatal botulism. A study was conducted to evaluate the effect of supplemental fluids like water, breast milk substitutes or other liquids during the first days of life on the overall breastfeeding duration and rate of exclusive breastfeeding among healthy infants. Electronic databases were used for the study. Only randomised, controlled trials were considered for study inclusion. In this study, the first days of life on the overall breastfeeding duration and rate of exclusive breastfeeding among healthy infants. Electronic databases were used for the study. Only randomised, controlled trials were considered for study inclusion. In this study, formula feeding was significantly more frequent at 4 weeks in the experimental group in which breastfeeding had been supplemented with 5% glucose and libitum during the first three days of life (n=83) than in the exclusively breastfed control group (n=87) ($p < 0.05$). At 16 week the percentage of mothers who continued breastfeeding either exclusively or partially, was significantly lower in the experimental group than in the control group ($p < 0.01$).

The successfully fed child is one who sleeps well, awakes, and feeds with good appetite and is satisfied, and who lies awake for a while and goes to sleep again. Furthermore, the baby gains adequate weight and length. But dear and dearest mothers of these new-borns give plenty of supplementary, so that her baby will be healthy, wealthy, fit and fine. In all these aspects of reluctance, unhealthy practices, cultural beliefs and practices we can see that she is unaware of the precious treasure in her which can be considered as life giving 'amrita' to her baby, instead she is running behind the unhealthy practices which slowly drain the health of the baby or making bottle babies.

Breast milk can also be considered as 'holy ganga' flowing from Himalayas that gives and sustains life. So national and international agencies, government as well as private organisations are trying to promote breastfeeding. Maternal and child health nurses are in a strategic position to make distinct contribution towards improving breastfeeding practices, change incorrect knowledge and help to relieve the problems related to breastfeeding."

NEED FOR THE STUDY

"Mothers milk can never be defective" (Health action 2018)
Breastfeeding is the most cost-effective, health promoting and disease preventing activity, the mothers can perform. The American Academy of Paediatrics identifies breastfeeding as the ideal method of feeding and nurturing infants and recognizes breastfeeding as primary in achieving optimal infant and child health, growth and development. Although widely encouraged by healthcare practitioners, breastfeeding is often associated with certain neonatal problems in the first few days after birth. When compared with formula-fed neonates' breastfed neonates lose more weight, take fewer calories, gain weight more slowly, and have higher serum bilirubin levels during the first week of life. Recent studies have suggested that many of these problems can be ameliorated by increasing the frequency of sucking. Furthermore, frequent nursing decreases maternal nipple pain and breast soreness and importantly leads to a longer period of lactation. According to American Academy of Paediatrics policy statement, all paediatricians and other healthcare professionals should promote initiation of breastfeeding at the earliest and should observe breastfeeding position, latch, milk transfer and hydration, elimination patterns and jaundice in new-born at least twice daily. Policy statement recommendations show that after breastfeeding is established (if the frequency of feeding approximately 8 times or more per 24 hours) infants elimination patterns are expected to be 3-5 urines and 3-4 stools per day by 5-7 days of age. Weight loss greater than 7% from birth weight indicates possible breastfeeding problems.

The theme of world breastfeeding week 2017 was "breastfeeding in the first hour save one million babies." The theme offered an excellent opportunity to draw global attention to the important role that breastfeeding plays in improving the health of infants.It is estimated that 4 million new-born deaths occur every year, among these 1.1 million neonates in developing countries, due to infection. The likelihood of death increases significantly each day, if the start of breastfeeding is further delayed.Researchers in rural Ghana found that babies who started to breastfeed in the first hours of life were more likely to survive the neonatal period than those who did not. Sixteen percentages of new-born deaths could be prevented if new-borns were breastfed exclusively from day one. Twenty-two percentages of new-born deaths could be prevented if new-borns-initiated breastfeeding within one hour of birth. Babies who did not start breastfeeding until after 24 hours of age were 2.5 times more likely to die than babies who started within the first hour of life, whether they were partially or exclusively breastfed." Another study which was conducted at Rural Ghana had found the association between the type of feeding with mortality risk. Both predominantly and partially breastfed infants had higher risks of neonatal death than exclusively breastfed infants. These findings indicate that both timing of initiation and breastfeeding pattern exert independent influence on neonatal mortality". breastfeeding on the basis of multiple logistic regression analysis.

Even though there is a lot of awareness at the periphery about the advantages of breastfeeding, some of the health professionals are not able to believe fully the facts about breastfeeding. A study was carried out to determine the proportion of health workers who routinely give pre-lacteal feeds (doctors, 68.2%; nurses 72.2% and non-medical, 73.6%). However, their reasons for doing so differed significantly ($p=0.00001$). Nurses gave mainly for perceived breast milk insufficiency, doctors for prevention of dehydration, hypoglycaemia and neonatal jaundice and nonmedical

staff to prepare the gastrointestinal tract for digestion and to quench thirst. The investigator had observed during her clinical postings, the differences in the breastfeeding pattern of mothers, the attitude and practices of healthcare professionals. She had also observed that the breastfeeding pattern have an influence in the physiological outcome of new-born during the first few days. All these observations motivated the investigator to conduct the present study to assess the relationship between the breastfeeding pattern and the selected physiological outcome variables of their new-borns in the first 3 days.

PROBLEM STATEMENT

"Impact of breast-feeding pattern on physiological outcome of new-borns in a selected hospital at Ernakulum district."

OBJECTIVES OF THE STUDY

1. To assess the breast-feeding pattern of mothers of new-borns by using a structured interview schedule.
2. To assess the physiological outcome of new-borns as measured by vital physiological parameter chart.
3. To determine the correlation between breast feeding pattern and the physiological outcome variables.
4. To find out the association between breastfeeding pattern and the selected baseline variables of the mothers such as age, education, gravida, religion, area of residence, income/ month and the physiological outcome variables with the selected baseline variables of the new-born such as sex, birth weight, gestational age in weeks, and blood group of mothers.

LITERATURE REVIEW

Knowledge, Attitude and Practices Related to Breast Feeding

A cross-sectional study was conducted at MGM, Kalamboli hospital on 122 mothers attending immunisation clinic having children up to two years of age. The objective was to study the breastfeeding practices and the influence of literacy and cultural factors on breastfeeding practices in mothers attending immunization clinic in an urban community of Navy-Mumbai. Chi-square and percentage test used for analysis. The results revealed that 44 (36.1%) mothers gave pre-lacteals to their children. 52 (70.2%) practiced exclusive breastfeeding and 9 (7.4%) started bottle feeds to their babies. 61.3% of literate mothers and 43.7% of illiterate mothers-initiated breastfeeding within 6 hours of delivery. The association between introduction of pre-lacteals and place of delivery was found to be statistically significant (p0.05). Only 1.9% of literate mothers had rejected colostrum as against 25% of illiterate mothers. It has proved that an undesirable cultural practice such as giving pre lacteal feeds, rejection of colostrum and late initiation of breastfeeding are still prevalent among the mothers, more so among illiterates.

A descriptive study was conducted in the selected hospitals of Madurai among postnatal mothers who had normal deliveries. Random sampling method was used toselect the sample for the study. The instrument used for data collection was structured interview schedule. The objective of the study was to assess the knowledge, attitude and practice and problem of postnatal mothers regarding breastfeeding. The findings of the study showed that overall knowledge regarding breastfeeding in the study population was 47.4 11.84 (range 25-78). All the study population (100) liked to breastfeed their babies and were aware of the benefits of breastfeeding. Only fourteen (14) of the population were antenatally prepared for breastfeeding Regarding the importance of breast milk, majority (77) of the population remarked that breast milk is the ideal food for the baby and 22 said that it contains protective substances Ninety-one of the population knew that they should feed the baby with colostrum but only 50 of the population knew the reason for feeding colostrum. Ninety-two of the total population fed their babies soon after delivery, but only 23 knew the reason for feeding breast milk soon after delivery. None of the population under study was aware of the relationship of early feeding with involution of uterus. With regard to'rooming in '95 of the population had positive attitude. Necessity to feed from both breasts each time was known to 75 of the populations.

A descriptive study was undertaken in 14 colleges in and around Mangalore city. The purpose of the study was to determine knowledge, attitude and practice of employed mothers regarding breastfeeding. Purposive sampling technique was used to select 60 mothers working in selected colleges having a child within two years age. Astructured interview schedule was prepared to determine the knowledge and attitude and a semi-structured interview schedule was prepared to determine the practiceof breastfeeding. Analysis showed that mothers had highest mean percentage (73%) of knowledge score in the area of benefits of breastfeeding, which had a mean and SD of 2.20= 0.57 The least mean percentage (24%) was found in the area of expression and storage of breast milk which had a mean knowledge score of 0.48± 0.29 However the total mean score was 2.14±1.65 which was 49.3% of the total score. It also revealed that all mothers responded correctly to the item that "breast milk is an ideal food" Majority (86.66%) of the respondents knew that colostrum protect the child from infection. Only 46.67% of the subjects had knowledge that breastfeeding should be initiated within 30 minutes after birth. 36.67% of the subjects had expressed that breastfeeding should be on demand.

Effect of Delayed Initiation of Breast feeding and Types of feeding on new-born

An evaluative study was conducted in Rural Ghana among women of childbearing age and their infants to evaluate whether timing of initiation of breastfeeding and type (exclusive, predominant, or partial) are associated with risk of neonatal mortality. The analysis was based on 10947 breastfed singleton infants born who survived to day 2 and whose mothers were visited in the neonatal period. The results showed that breastfeeding was initiated within the first day of birth in 71% of infants and by the end of day 3 in all. The risk of neonatal death was fourfold higher in children given milk-based fluids or solids in addition to breast milk. There was a marked dose response of increasing risk of neonatal mortality with increasing delay in initiation of breastfeeding from one hour to day 7; over all late initiation (after day 1) was associated with a 2.4-fold increase in risk.

A comparative study was conducted among children ≤ 2 years of age. The children were divided into two groups such as infants who had breastfed exclusively for ≤ 6 months of age and continued breastfeeding for older infants and children ≤ 2 years of age. The objective was to estimate attributable fractions for deaths due to diarrhoeal disease and lower respiratory tract infections are 55% and 53% respectively, for the first six months of infancy, 20% and 18% for the second six months, and are 20% for all cause deaths in the second year of life. Globally, as many as 1.45 million lives are lost due to suboptimal breastfeeding in developing countries.

Impact of breastfeeding pattern on new-born outcome variables

A correlative study was conducted in a national hospital, Japan to find out the relation between the frequency of breastfeeding/24hours and intake, weight loss, meconium passage, and bilirubin levels. 140 healthy, full term breastfed neonates born vaginally without complications were selected for the study. Factors affecting the frequency of breastfeeding were also evaluated. Mothers nursed their neonates, on average 4.3 ± 2.5 SD times (range to 11) during the first 24 hours after birth, and this frequency increased significantly to 7.4 ± 3.9 times during the next 24 hours ($p < .001$). There was significant correlation between the frequency of breastfeeding during the first and second 24hours after birth ($r = 0.69$ p <,001) . The frequency of breastfeeding during the first 24hours correlated significantly with frequency of meconium passage ($r = 0.37$ p<.01), maximum weight loss ($r = 0.22$,<05) , breast milk intake on day 3 ($r = 0.5$, $p < 0.01$) and day 5 ($r = 0.34$,<,05), transcutaneous bilirubin readings on day 6 (($r = 0.18$, $p < 0.05$) and weight loss from birth to time of discharge (day7) ($r = -32$, p <,01) . There was a strong dose-response relationship between feeding frequency and a decreased incidence of significant hyperbilirubinemia (transcutaneous bilirubin readings >= 23.5) on day 6. The time of birth also affected the frequency of breastfeeding during the first 24 hours. Neonates born between midnight and 6 were nursed more frequently than those born between 1pm and midnight. (5.1 ±2.4 vs. 3.9 plus/minus 2.3 times, $p < 5$). The results demonstrate that frequent sucking in the first days of life has numerous beneficial effects on the breastfed, full-term new-born.

A longitudinal study of feeding practices and morbidity in 537 infants was watered in Bombay. Breast feeding practices were assessed at monthly follow up vits. All infants were initially exclusively breasted fed but their percentage dropped 039.8% and 35.3% at the end of 3 months and 6 months respectively. The results showed that exclusively breast-fed babies were three times less likely to fall sick. The average incidence of morbidity in the first 6 months of age was 3.1 episodes/child/ year for exclusively breastfed babies, 8.1 for mixed fed and 9.9 for totally artificially fed babies. The incidence of hospitalization was less for breast fed babies as compared to mixed fed and artificially fed babies, indicating that breastfed infants rarely have serious illness.

A study was conducted in Pennsylvania state university to evaluate the effect of breastfeeding on normal serum bilirubin levels in the new-born. 2,416 infants (95% white, 95% > 2, 500g) who admitted in a well-baby nursery were selected for the samples. The total serum bilirubin level was measured in every case on the second or third hospital day (according to standard clinical protocol) and was repeated if the concentration exceeded 12.9mg/dl or clinical jaundice increased. The maximum serum bilirubin level exceeded 12.9mg/dl in 147 infants (6.1%). These infants constituted "hyperbilirubinemic group." From the remaining 2,269 infants with serumbilirubin levels <= 12.9mg / d * l . randomly selected a control group of 147 infants and compared them with the test group for a number of variables. The results showed 147 infants (6.1%) had a serum bilirubin concentration > 12.9mg / dl. In that 66 (44.9%) had an apparent cause for the jaundice, but in 81(55%), no cause was found. Of infants in whom no cause for hyperbilirubinemia was found, 82.7% were breastfed vs. 46.9% in the control group ($p < 0.00001$) Breastfeeding was significantly associated with hyperbilirubinaemia, even in the first three days of life. Of the formula fed infants, only 2.24% had serum bilirubin levels > 12.9mg / dl v 8.97% of the breastfed infants ($p < 0.000001$) Breastfed infants lost on average, 6.9% of their birth weight, whereas bottle-fed infants lost 4.2% ($p < 0.02$)

Advantages of breast feeding on new-born in other related conditions

A study was conducted to assess the long-term effects of breastfeeding on child behaviour and maternal adjustment. A total of 17,046 healthy, breastfeeding mother-infant pairs were enrolled from 31 Belarusian maternity hospitals and affiliated polyclinics, 13,889 (81.5%) were followed up at 6.5 years. Mothers and teachers completed the 'strengths and difficulties questionnaire and supplemental questions bearing on internalizing and externalizing behavioural problems.

Mothers also responded to questions concerning their relationships to their partner and child and their breastfeeding of subsequently born children. The experimental intervention led to a large increase in exclusive breastfeeding at 3 months. (43.3% vs. 6.4%) and a significantly higher prevalence of any breastfeeding at all ages up to and including 12 months. No significant treatment effects were observed on either the mother or the teacher 'strengths and difficulties', questionnaire rating of total difficulties, emotional symptoms, conduct problems, hyperactivity, peer problems, or prosocial behaviour or on the supplemental behavioural questions. We found no evidence of treatment effects on the parent's marriage or on the mother's satisfaction with her relationships with her partner or child, but the experimental intervention significantly increased theduration of any breastfeeding, and mothers in the experimental group were nearly twice as likely to breastfed exclusively the next-born child for at least 3 months

A case control study was conducted to determine whether breastfeeding protects infants from infections. The cases were previously healthy children who were admitted to Yale-New Haven hospital for an infectious illness at or before 90 days of age. The controls were chosen from the log of births and matched to the cases for five important demographic variables. In addition, logistic regression models were used to adjust the results for other potential confounders. For the 281 case control pairs, the matched odds ratio was 50 (95% CI .32, 77, P < .005), which indicates that breastfeeding is protective against infections. The matched odds ratio for the 164 infants with serious illnesses was 79(.47, 1.32, p < .05) and for the 117 infants with mild illnesses it was. 17 (.03, 44, p<.001). These stratified results suggest that breastfeeding protects infants from hospitalization rather than from infections.

HYPOTHESIS

All hypotheses will be tested at 0.05 level of significance.

H_1: There will be a significant correlation between the breast-feeding pattern and the physiological outcome variables.

H_2: There will be a significant association between the breast-feeding pattern and the selected baseline variables of the mother and physiological outcome variables with the selected baseline variables of the newborn.

Assumptions

The study assumes that

1. Breastfeeding pattern promotes the health of the new born.
2. Physiological health parameters are the indicators of the adaptation of the baby to the extra uterine life

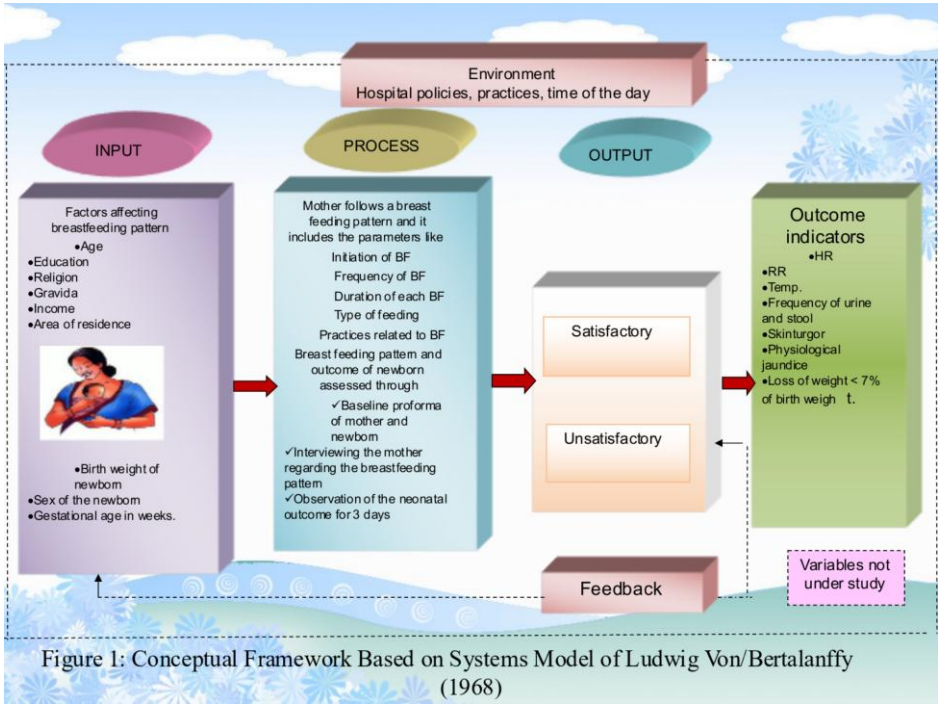

Figure 1: Conceptual Framework Based on Systems Model of Ludwig Von/Bertalanffy (1968)

METERIALS AND METHODS

Research Design

A descriptive correlative design was chosen for the present study to find out the relationship between breastfeeding pattern and physiological outcome variables of new-borns.

Research setting

This study was conducted in Carmel Hospital Aluva. The present study wasconducted in labor room, maternity ward of the selected hospital with average bed strength of 40

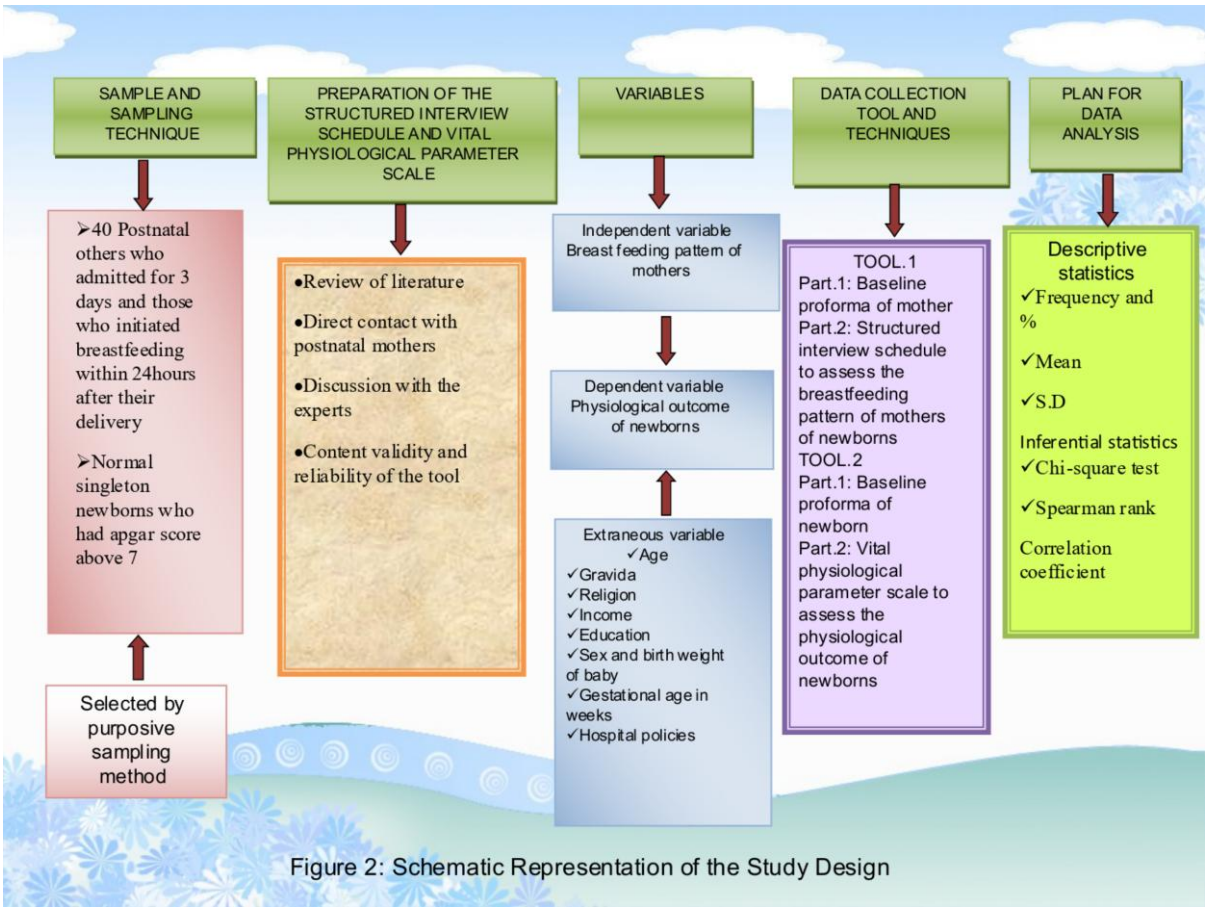

Figure 2: Schematic Representation of the Study Design

POPULATION

Sampling Technique

Purposive sampling technique is used for selection of samples for data collection.

Sample Size

40 post-natal mothers who admitted for 3 days and those who initiated breastfeeding within 24 hours after their delivery. And normal singleton new-borns who had Apgar score above 7

Inclusion Criteria

- Normal full term, singleton newborns born by normal delivery and their mothers hospitalized at least for three days.
- Mothers of the newborn who know English and Malayalam

Exclusion criteria

- Mothers who are not able to establish breastfeeding within 24 hours.
- New born with mother's blood group as Rh negative.
- Newborns that is dark in complexion.
- New born with mothers not willing to participate.
- Newborns with Apgar score less than 7 at one minute.
- Newborns with cleft lip and cleft palate.
- Newborns with cardiac problems and respiratory difficulties
- Mothers with breastfeeding difficulties, cracked and flat nipple.

INSTRUMENTS USED

- TOOL.1
  Part.1: Baseline proforma of mother
  Part.2: Structured interview schedule to assess the breastfeeding pattern of mothers of newborns
- TOOL.2
  Part.1: Baseline proforma of newborn
  Part.2: Vital physiological parameter scale to assess the physiological outcome of newborns

DATA COLLECTION:

The main study was conducted from August 1st to 26th 2024 on 40 postnatal mothers and their 40 newborns. The subjects were selected from labor room, and maternity ward, based on the inclusion and exclusion criteria. Purposive sampling technique was used to select the sample.

The investigator has done observation on neonates at 24hs, 48hrs, and 72hrs after birth, except two variables such as urine and stool. The investigator maintained periodic output chart in order to get the frequency of urine and stool and had provided napkin to check the color. The data related to the breast-feeding pattern was obtained on 3rd. postnatal day by using structured interview schedule. The data collection was terminated by thanking the respondents for their co-operation. The data collected was compiled for analysis

RESULT

Section 1: Description of Baseline proforma of mother and New born.

Table 1: Frequency and percentage distribution of Sample Characteristics related to Mother
N=40

Sl No.	Variables	Frequency	Percentage (%)
1	**Age (Yrs.)**		
	1.1 ≤ 20	4	10
	1.2 21-25	18	45
	1.3 26-30	11	27.5
	1.4 31-35	7	17.5
2	**Education**		
	1.1 Illiterate	6	15
	1.2 Primary	20	50
	1.3 High School	7	17.5
	1.4 PUC / Higher Secondary	3	7.5
	1.5 Graduate	4	10
3	**Gravida**		
	1.1 Primi	15	37.5
	1.2 2nd Gravida	15	37.5
	1.3 3rd Gravida	5	12.5
	1.4 4Th and above	5	12.5
4	**Religion**		
	1.1 Hindu	8	20
	1.2 Christian	2	5
	1.3 Muslim	30	75
5	**Area of residence**		
	1.1 Rural	20	50
	1.2 Urban	20	50

6	**Income / Month (in rupees)** 1.1 ≤ 5000 1.2 5001-7000 1.3 7001-10000 1.4 > 10000	 32 7 1 0	 80 17.5 2.5 0

Table 2: Frequency and percentage distribution of New-born Characteristics

N=40

Sl.no	Variables	Frequency	Percentage (%)
1	**Sex of the new-born**		
	1.1 Male	**23**	**57.5**
	1.2 Female	**17**	**42.5**
2	**Birth weight**		
	1.1 < 2.5 kg	**9**	**22.5**
	1.2 2.5 - 3 kg	**25**	**62.5**
	1.3 3.1 –3.5 kg	**4**	**10**
	1.4 3.6 – 4 kg	**2**	**5**
3	**Gestational age in weeks**		
	1.1 38 wks.	**14**	**35**
	1.2 39 wks.	**15**	**37.55**
	1.3 40 wks.	**5**	**12.5**
	1.4 > 40 wks	**6**	**15**
4	**Blood group of mothers**		
	1.1 O +ve	**14**	**35**
	1.2 A + ve	**12**	**30**
	1.3 AB + ve	**0**	**0**
	1.4 B +ve	**14**	**35**
5	**Type of feeding**		
	1.1 Exclusive BF	**35**	**87.5**
	1.2 Pre- lacteal feeds is given	**5**	**12.5**

Section 2: Assessment of Breastfeeding Pattern of Mothers

Table 3: Frequency and percentage distribution of subjects According to Breastfeeding Pattern

N=40

Sl.no	Breastfeeding Pattern	Frequency	Percentage (%)
1	**Initiation of BF**		
	a. Within 24 hours	**0**	**0**
	b. Within 6 hours	**11**	**27.5**
	c. Within 1 hour	**29**	**72.5**
2	**Type of feeding**		
	a. Breastmilk &formula feeds	**4**	**10**
	b. Breastmilk & pre-lacteal feeds	**2**	**5**
	c. Only breast milk	**34**	**85**
3	**Frequency of BF**		
	a. < 5 times	**5**	**12.5**
	b. 5-7 times	**14**	**35**
	c. > 8 times	**21**	**52.5**
4	**Duration of each BF**		
	a. < 5mts	**18**	**45**
	b. 5-6 mts	**6**	**15**
	c. 10-15 mts/ till the baby satisfied	**16**	**40**
5	**Cleaning the breast before each BF**		
	a. Never	**29**	**72.5**
	b. Sometimes	**5**	**12.5**
	c. Always	**6**	**15**
6	**Burping the baby after each BF**		
	a. Never	**7**	**17.5**

	b. Sometimes	**0**	**0**
	c. Always	**33**	**82.5**
7	**Feeding from both breasts during each BF**		
	a. Never	**10**	**25**
	b. Sometimes	**7**	**17.5**
	c. Always	**23**	**57.5**
8	**Preference of sitting position for BF**		
	a. Never	**6**	**15**
	b. Sometimes	**34**	**85**
	c. Always	**0**	**0**
9	**Rooming in**		
	a. Never	**1**	**2.5**
	b. Sometimes	**0**	**0**
	c. Always	**39**	**97.5**
10	**Latching the areola of breast**		
	a. Never	**5**	**12.5**
	b. Sometimes	**0**	**0**
	c. Always	**35**	**87.5**

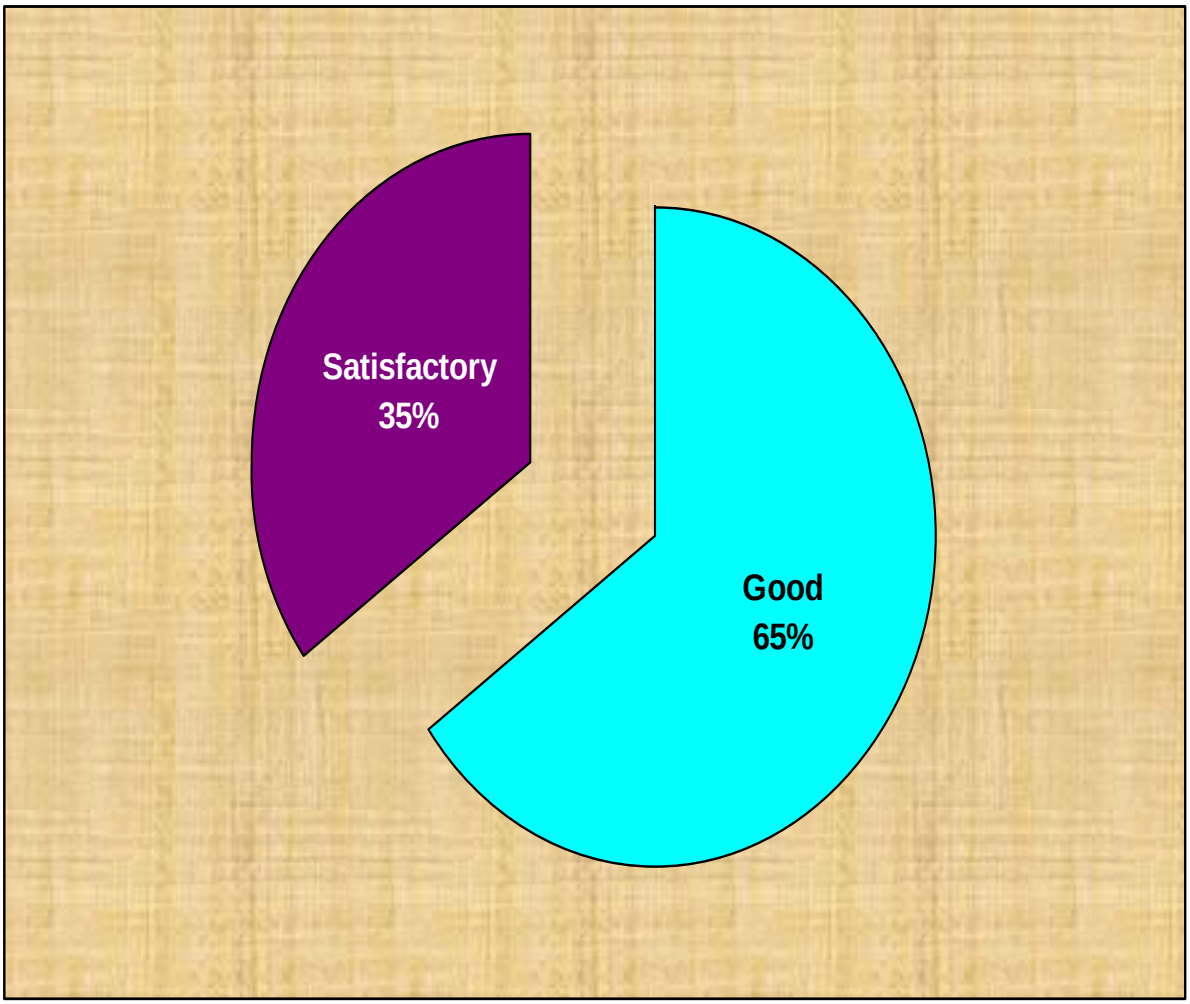

Fig 1. Shows breast-feeding pattern of mothers

The breast-feeding pattern was ‘good’ among (65%) and ‘satisfactory’ among 35% of mothers

Section 3: Assessment of Physiological Outcome Variables of New-borns on Day 1, Day 2 & Day 3

Sl.no	Physiological Outcome variables	Day 1		Day 2		Day 3	
		f	%	f	%	f	%
1	No. of meconium stools/24 hrs. a. ≤ 1 time b. 2 times c. 3-5 times	 3 15 22	 7.5 37.5 55	 1 14 25	 2.5 35 62.5	 - 9 31	 - 22.5 77.5
2	No. of voids / 24 hrs. a. ≤ 2 times b. 3 times c. 4-6 times	 18 21 1	 45 52.5 2.5	 9 22 9	 22.5 55 22.5	 - 19 21	 - 47.5 52.5
3	Skin turgor a. >3 seconds b. Within 1-3 seconds c. Within one second	 - 5 35	 - 12.5 87.5	 - 3 37	 - 7.5 92.5	 - - 40	 - - 100
4	Level of serum bilirubin based on clinical assessment criteria a. > 15 mg/dl b. 9 ≥15mg/dl c. < 9 mg/dl	 - - 40	 - - 100	 - 1 39	 - 2.5 97.5	 1 8 31	 2.5 20 77.5
5	Loss of weight < 7 % 0f birth weight a. More than 10% of birth weight b. 7%-10% of birth weight c. < 7 % of birth weight.	 - - 40	 - - 100	 - 3 37	 - 7.5 92.5	 1 8 31	 2.5 20 77.5
6	Temperature (axilla) a. < 97^0 F or > 99^0 F b. 97^0 F – 98^0 F c. 98.1^0 F - 99^0 F	 - 30 10	 - 75 25	 - 15 25	 - 37.5 62.5	 - 6 34	 - 15 85
7	Heart rate (when the child awakes) a. < 100 / mt or > 160/mt b. 100 - 130/mt c. 131 - 160/mt	 - 37 3	 - 92.5 7.5	 - 35 5	 - 87.5 12.5	 - 26 14	 - 65 35
8	Respiratory rate a. < 20 /mt or > 60/mt b. 20 -30/mt c. 31- 60/mt	 - 1 39	 - 2.5 97.5	 - - 40	 - - 100	 - - 40	 - - 100

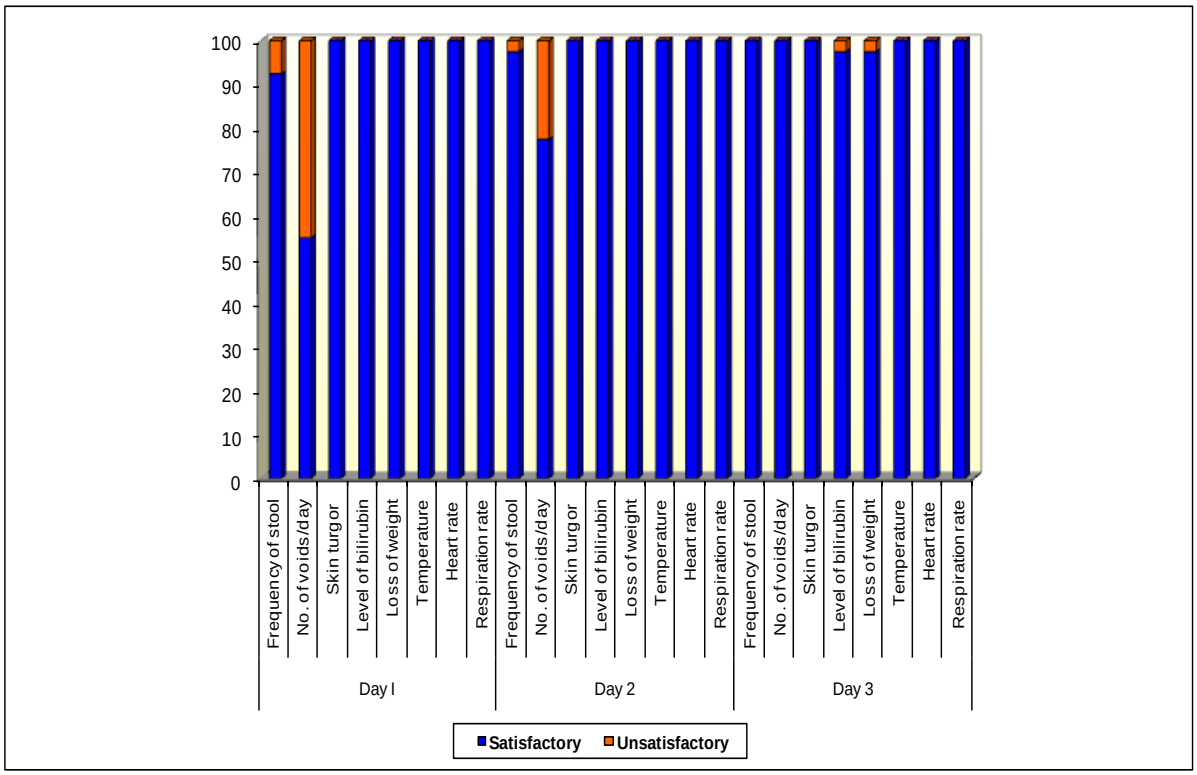

Fig 2: Bar Diagram Shows frequency and % distribution of physiological outcome variables of new-born.

The physiological outcome variables of newborns were 'satisfactory' in all the newborns except two outcome variables such as level of bilirubin and loss of weight. The level of bilirubin and loss of weight < 7% of birth weight was 'un satisfactory' among 2.5% of newborns on 3rd day. The number of meconium stools and number of voids/ 24hrs was 'un satisfactory' among 7.5, 2.5% on day 1 and day 2 and 45%, 22.5% on day 1 and day 2 respectively.

Section 4: Correlation Between Breast Feeding Pattern and Physiological Outcome Variables.

Table 7: Correlation between Breast Feeding Pattern and the Physiological Outcome Variables on Day I and Day II and Day III.

N =40

Breast feeding pattern and newborn outcome variables	Day I ∫ (rho)	Day II ∫ (rho)	Day III ∫ (rho)
1. Over all breast feeding pattern and Meconium stools/24hrs	.071 (p=>0.05)	.376* [P=<0.05]	.267 [P=>0.05]
2. BF pattern and No. of voids / 24hrs	.277 [P=>0.05]	.181 [P=>0.05]	.333* [P=<0.05]
3. BF pattern and Skin turgor	.106 [P=>0.05]	.104 [P=>0.05]	.000
4. BF pattern and Level of bilirubin	-.259 [P=>0.05]	.226 [P=>0.05]	.245 [P=0.05]
5. BF pattern and Loss of weight <7% of birth weight	-.259 [P=>0.05]	.375* [P=<0.05]	.153 [P=>0.05]
6. BF pattern and Temperature	.268 [P=>0.05]	.163 [P=>0.05]	.046 [P=>0.05]
7. BF pattern and Heart rate	-.299 [P=>0.05]	-212 [P=>0.05]	.158 [P=>0.05]
8. BF pattern and Respiratory rate	-.326* [P=<0.05]	.273 [P=<0.05]	.196 [P=<0.05]

* Correlation is significant at the 0.05 level [2 - tailed]

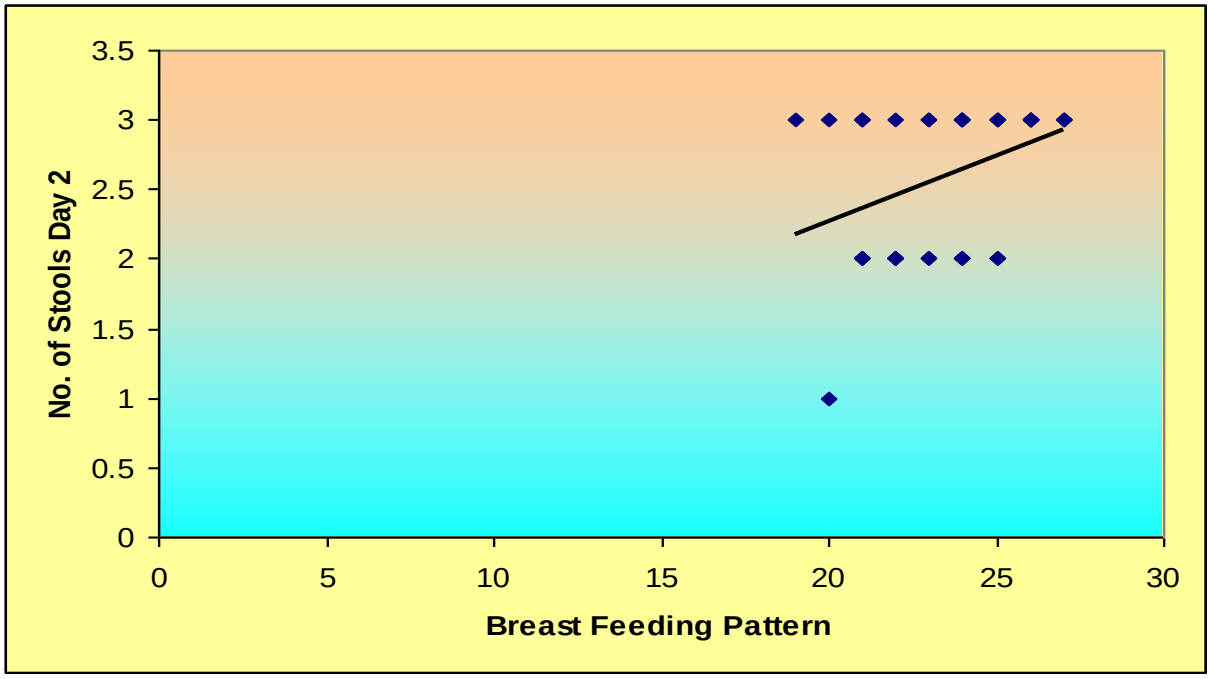

Fig 3: Scatter Diagram Showing a Positive Correlation between Breastfeeding Pattern and the Number of Meconium Stools on Day 2

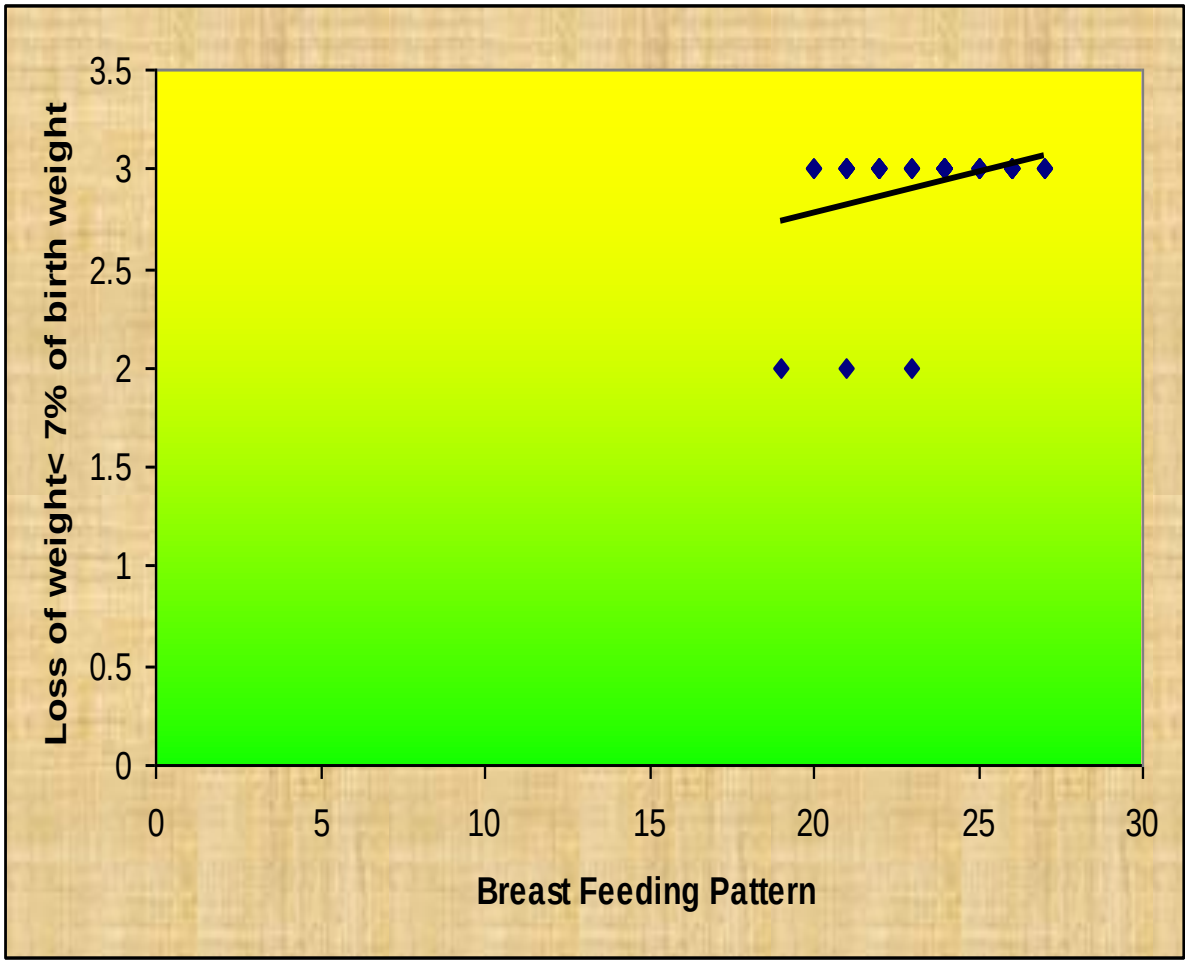

Fig 4: Scatter Diagram Showing a Positive Correlation between Breastfeeding Pattern and Loss of Weight < 7% of Birth Weight on Day 2

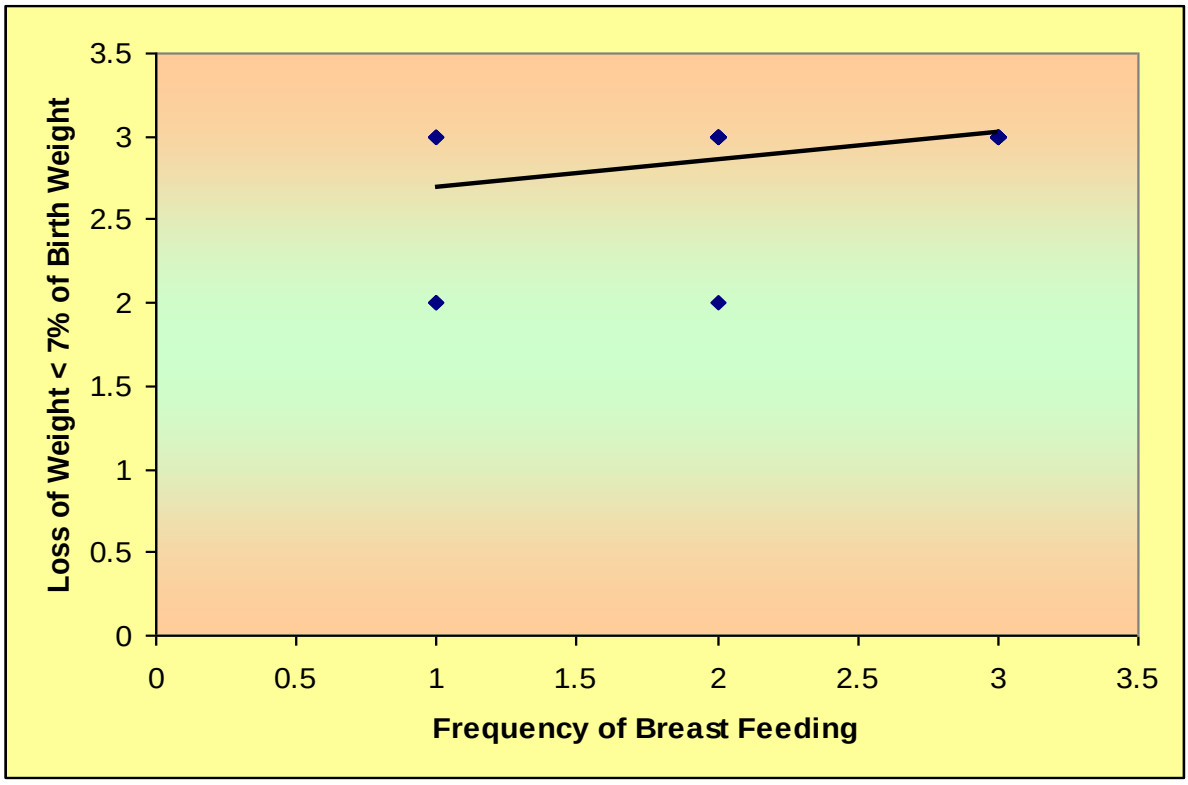

Fig 5: Scatter Diagram Showing a Positive Correlation between Frequency of Breastfeeding and Loss of Weight < 7% of Birth Weight on Day 2

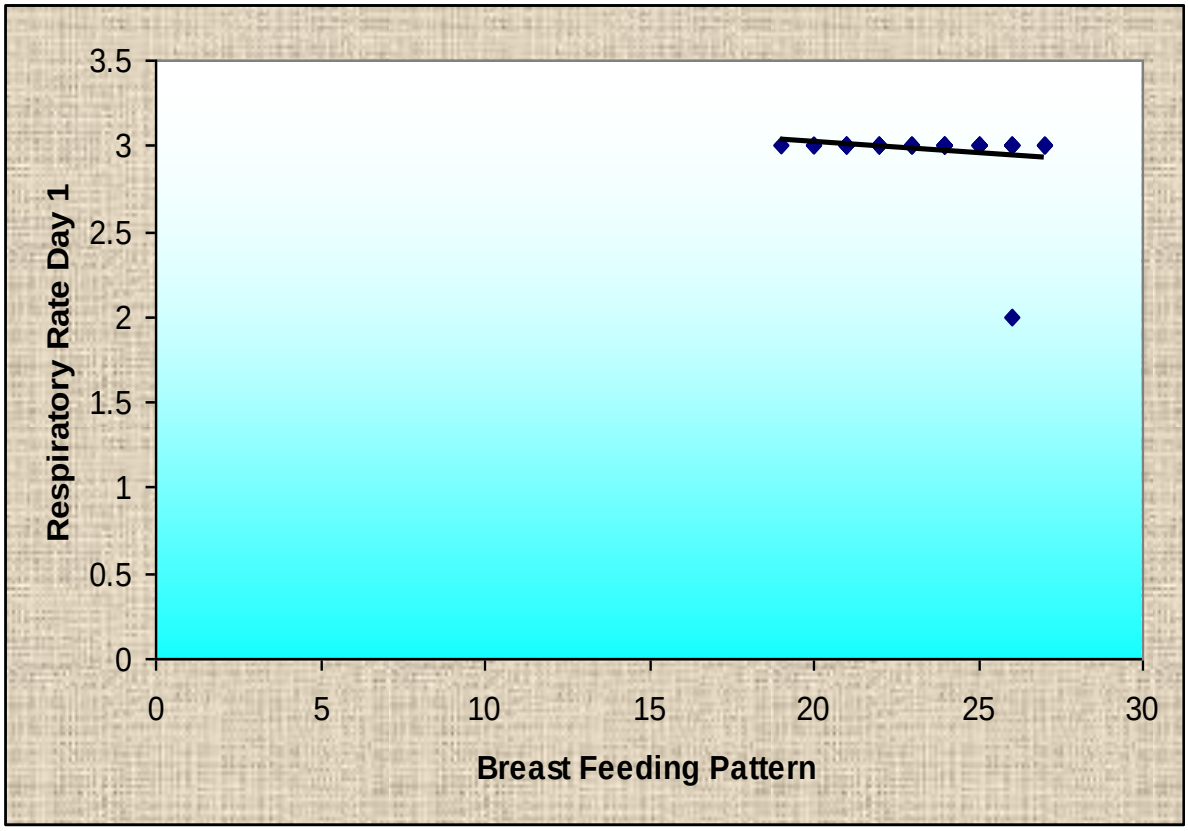

Fig 6: Scatter Diagram Showing Negative Correlation Between the Breast-Feeding Pattern and Respiratory Rate.

DISCUSSION

Findings of the Study

Section 1: Baseline Data of Mothers

The present study shows that

- Highest percentage of subjects (45%) were found in the age group of 21- 25years, followed by 27.5% were in the age group of 26-30.
- Nearly 50% mothers had received primary education and 17.5% had high school education. Graduates constitute 10% and illiterate were 15%
- Equal percentages of mothers (37.5%) were primi and second gravida Mothers with higher parity constitute 25%.
- Majority of the subjects 75% were Muslims, Christians and Hindus together accounted for only 25% of the study population.
- Equal percentages of mothers (50%) were resided in rural and urban area.
- Majority (80%) of families earned less than 5000/month

A cross sectional study was conducted in urban slums of Chandigarh to study the socio demographic factors associated with initiation of breast feeding. The resultsshowed that illiterate / just literate mothers who delivered at home were found at significantly higher risk of delay in initiation of breast feeding."
The findings of the present study are contradictory to the above study findings. In this study majority 65% of mothers were illiterate or had primary education. But most of the mothers-initiated breast feeding within one hour. This may be due to hospital routine.

A prospective study was conducted in Turkey to study the risk factor for excess weight loss and hypernatremia in exclusively breast-fed infants. It showed that the infants with a weight loss more than 10% were more likely to be from primiparous mothers ($P<0.05$), to have received their first breast feeding later than the controls" ($p<0.01$). In the present study the findings are contradictory to the above findings. There was no significant difference in weight loss and late initiation of breast feeding among primi gravid and multigravida mothers. It may be due to good breast-feeding pattern followed by the mothers.

Section I: Base Line Data of New-borns

The present study showed that

- More than half of the new-born (57.5% were males and 42.5% were females.
- Majority of the new-borns (62.5%) had birth weight between 2.5-3kg, 22.5% had birth weight less than 2.5kg, 10% had birth weight between 3.1-3.5kg and only 5% weighed above 3.6kg at birth.
- Among the new-borns 37.55% were born at 39wks, 38wks and 40wks constituted 35% and 12.5% respectively and 15% were born after 40wks.

Section 11: Breast Feeding Pattern of Mothers

Mother's milk is a complete planned food for a new-born infant. It should be initiated within one hour after birth. It should continue on demand. The time of initiation, frequency per 24hrs, duration of each demand feeding andbreast feeding, type of feeding. rooming in is of prime importance for the health and adjustment of new-borns to the extra uterine life" So formal evaluation of breast-feeding patter is important for the first days.

In the present study 40 mothers were interviewed regarding their breast-feeding pattern. The findings showed that majority (72.5%) had initiated breast feeding within one hour and 27.5% had initiated within 6hrs. 85% of mothers had given only breast milk to their babies. But 10% had given breast milk and formula feeds and 5% had given pre-lacteal feeds along with breast milk. The frequency of breast feeding was more than 8 times among 52.5% of mothers and 5-7times among 35% of mothers. Only 12.5% of mothers breastfed their babies <5 times per 24 hrs. The duration of each breast feeding was < 5minutes among 45% of mothers and 10- 15 minutes among 40% of mothers and 15% had breastfed for 5-9minutes. Majority of the mothers (72.5%) were not cleaning the breast before and after each feeding and only 15% had the habit of cleaning the breast before and after each breast feeding. Among the subjects 82.5% had burped their babies after each feed and 17.5% had not burped the baby after each feed. Among the 40 subjects 57.5% fed the baby from breast during each feeding and 25% had fed from only one breast. Among the mothers85% preferred

sitting position for breast feeding and 15% preferred other positions. Majority of mothers (97.5 %) had practiced rooming in.
These findings are congruent with the following studies in which some of the breast-feeding practices were explained.
A cross sectional study was undertaken to study the breast-feedingpractices and the influence of literacy on breast feeding practices. It showed that out off of 122 mothers who were Interviewed 61.3% of literate mothers while 43.7% of illiterate who initiated breast feeding within 6hrs of delivery, only 15.1% of literate and 31.2% of illiterate mothers-initiated breast feeding after 24hrs of delivery. Out of 74 mothers 70.2% have practiced exclusive breast feeding, only 7.4% mothers had given formula feeds and breast milk and 36.1% of mothers had given pre-lacteals to their children."
A descriptive survey conducted in Mangalore City showed that only 46.6% of the subjects had given breast milk as first feed. Out of 60 mothers 26 mothers-initiated breast feeding within 30 minutes. After birth, all sixty respondents fed colostrum to their baby. 36.67% of the mothers had practiced demand feeding."

Section III: Physiological Outcome Variables of New-born

New-borns are a most vulnerable group, because their body systems are immature, in order to cope up, they require special attention" Even though they are not able to express their own needs and problems, the new-born shows some cues depending on its condition. The vital and physiological parameters are the basic cues to identify the new-born needs and conditions especially during the adjustment to the extra uterine life.

- The present study revealed the following findings: Out of 40 new-borns the number of meconium stools passed between 3-5 times among 55% of new-borns on day 1, 62.5% on day 2 and 77.5% on day 3.
- The number of meconium stools passed ≤ 1 time was 7.5% of new-borns on Day 1, 2.5% of new-borns on day and none of them on day 3
- The number of voids 24hrs between 4-6 times among 2.3% of new-borns on day1, 22.5% on day 2 and 52.5% of new-borns on day 3.
- More than half of new-borns, 52.5% voided 3 times on day 1, 55% on day 2 and 47.5% on day 3.
- It was also found that 45% of new-borns voided ≤ 2 times on day 1, 22.5% on day 2 and none of them on day 3
- The skin turgor was good for 100% of new-borns on day 3 and on first day was good for 87.5% of new-borns
- Level of bilirubin based on clinical assessment criteria was significant (i. e >15mg/dl) among 2.5% of new-borns on day 3.
- Loss of weight (more than 10% of birth weight) was significant among 2.5% of new-born on day 3.
- There was increased percentage of satisfactory (100%) vital parameters (temperature, HR and RR) on day 3 than on day 2 and day l

These findings are congruent with the following study findings in which some of the outcome variables are explained.A correlative study was conducted in Japan to find out the relationship between breast feeding frequency per 24 hrs and the neonatal physiological outcomevariables like frequency of meconium passage (number of times) age at which maximum weight loss (day), percentage of maximum weight loss, weight loss on day 7, transcutaneous bilirubin readings. The results showed that the mean of frequency of meconium passage/24hrs was 29 (times), age at maximum weight loss was on 3rd day, maximum weight loss 6.8%, transcutaneous bilirubin readings on day 6 (18.6± 3.9), weight loss on day 7 (2±3.5).

A prospective study was conducted to study the risk factors for excess weight loss and hyper natremia in exclusively breast-fed neonates Of the 18 infants with a weight loss of more than 10% (33.3%) had hypernatremia ranging from 151 to 168 mmol; /L and 50% had fever ranging from 37.9° to 38.9° C Weight loss ranged from 10.17 to 15.76% None of them needed phototherapy. Bilirubin levels were below the phototherapy range (mean: 170mmol/L, range 98-260mmol/L)

Section IV: Correlation between Breast Feeding Pattern and Physiological Outcome Variables of New-born.

Even though breast milk is the best nutritious and complete planned food for the new-born infant, breast feeding often associated with certain neonatal problems in the first few days after birth. Weight loss, increased serum bilirubin level, hypothermia, diarrhoea, dehydration etc. are some of the neonatal problems in the first few days of life". Research

studies have suggested that many of these problems can be ameliorated by appropriate breast-feeding pattern and practices.

The present study revealed that there to significant correlation between breast feeding pattern and the selected physiological outcome variables. The findings are

- There is significant positive correlation between breast feeding pattern and Number of meconium stools 24hrs on day 2 f=.376. (P = < 0.05)

- There is significant positive correlation between breast feeding pattern, And number of voids 24hrs on day 3f=.333. (P = < 0.05)

- Significant positive correlation between breast feeding pattern and loss of weight< 7% of birth weight on day 2 f=.375. (P = < 0.05)
- Significant negative correlation between breast feeding pattern and respiratory rate
  f = 0.326(P <= 0.05)
- Significant positive correlation between frequency of breast feeding and loss of weight < 7% of birth weight f = 548(P < 0.01)

These findings are congruent with the following study findings

A correlation study was conducted in Japan showed that the frequency of breast feeding positively correlated significantly with the frequency of meconium passage (Day 0 to 1] x = 0.37 (P <01), age at maximum weight loss -23(P <05), maximum weight loss -22 [P<.05), Transcutaneous bilirubin readings on day six r = 18(p < 0.05) incidence of hyperbilirubinemia on day six r = pd (P= (Tc B >= 23.5) <0.05), weight loss at discharge on day seven r-.32 (P=<0113

A prospective study was conducted in rural Egypt showed that infants in whom breast feeding was initiated early had a 26% lower rate of diarrhoea than those initiated late. In the present study diarrhoea was not reported among the new-borns who were initiated breastfeeding within 1 hour and within 24 hours

A study was conducted in Pensylvania state university Hospital showed contradictory findings that significant striking relationship between breast feeding and hyperbilirubinemia. Of the infants for whom no apparent cause for hyperbilirubinemiawas found 83% was breast fed.

A prospective study was conducted in metropolitan area showed that significant positive correlation between hyperbilirubinemia 12.9mg/dl) and supplementary feeding, oppositely breast-fed neonates did not present a higher frequency of significant hyper bilirubinaemia in the first days of life

But in the present study there was no significant relationship between breast feeding pattern and level of bilirubin. Failure to show significant relationship was probably due to sample size was too small, assessment had done only for the first days and also the method used for detecting the level of bilirubin was based on the clinical assessment criteria due to ethical concern.

A study was conducted to compare the clinical effect of breast feeding extremely low birth weight infants, the pre and post feeding weights, O_2 saturation. respiratory rate and heart rate and axillary temperature were monitored. The infants demonstrated higher oxygen saturation and a higher temperature during breast feeding than bottle feeding. Weight gain was greater during bottle feeding than during breast feeding.

In the present study there is a significant negative correlation between feeding pattern and respiratory rate = -.326 (P<0.05).

Even though the breast-feeding pattern and temperature showed no significance, the observations on day 1. Day 2 and day 3 showed difference i.e 100% of the new-borns attained normal temperature(98-99°F) on 3rd day It revealed that breast feeding helps in the rise of temperature

The present study also shows that there is weight loss 0. e = 7% of birth sight in the breast-fed new-borns)

Other Significant Findings

In the present study other significant correlations were found between the physiological outcome variables.The findings are:

- Positive correlation between number of voids /24hrs and skin turgor $f = 0.41(P < 0.01)$ on day 1.
- Perfect positive correlation was observed between level of bilirubin and loss of weight < 7% of birth weight $f = 1(P < 0.01)$ on day 1.
- Positive correlation between respiratory rate and level of bilirubin $f = 0.698(P < 0.01)$ on day 1.
- Positive correlation between respiratory rate and loss of weight in $f = .698(P = 0.01)$ on day 1.
- Positive correlation between no. of meconium stools / 24hrs and no. of voids $f = 0.447$ ($P < 0.01$). on day 2
- Positive correlation between skin turgor and level of bilirubin $f = 0.37$ (0.05) on day 2.
- Positive correlation between level of bilirubin and number of voids /24h $f = 332$ ($P < 0.05$) on day 3
- Positive correlation between temperature and respiratory rate $f = 381$ ($P < 0.05$) on day 3.

A prospective study was conducted to study risk factors for excess weight loss and hyper natremia in exclusively breast-fed infants showed that among dehydrated infants, a pink diaper was associated with greater weight loss ($P<0.05$) and with a higher uric acid concentration. Weight loss correlated well with serum sodium 0.548, $P<0.02$) and uric acid (r: 0.572, $P<0.02$) concentrations. Bilirubin levels were all below the phototherapy range (mean:170µmol/L; range 98-260µmol/L). A prospective was conducted in metropolitan area showed new-borns with significant hyper bilirubinaemia underwent a greater weight loss compared with the overall study population. There is no supportive study to explain the other significant relationships.

Section V: Association between Breast Feeding Pattern and Selected Baseline Variables of the mother

A cross sectional epidemiological study was conducted among families of Armed forces personnel in a large cantonment to find out the relationship between the breast-feeding practices and the socio-demographic variables such as age, religion, socio economic status of mother, parity and place of residence of the mother. It was seen that a higher proportion of first para mothers, (83.61%) fed colostrum to their new-born as compared to mothers with higher parity. This difference was statistically significant ($P<0.001$). Association of feeding colostrum with place of residence of the mother, 77.14% from the rural mothers and 20% from urban mothers. 22.86% from rural and 42.86% from urban were not given colostrum. In this study 89.4% motherspracticed demand feeding while 10.86% practiced scheduled feeding 92.16% of Hindu 75% of Muslim, 53-85% of Christian mothers practiced demand feeding Hindu mothers are more likely to practice demand feeding as compared to mothers belonging to other religions The difference was found to be statistically significant ($P<0.01$) 58.44% of the mothers who were educated up to higher secondary level or more, exclusively breast fed their child compares to lower educational status The difference was statistically significant ($P<02$), It was seen that 68 57% of mothers from urban background exclusively breast fed their child for 4-6 months as compared 10.42.14% of mothers from rural background. It was seen that out of those mothers who belonged to 30 years age group, a higher proportion (58.3%) partially breast fed their child for 6-18 months, with much lower figures being observed for younger mothers. The difference found to be statistically significant ($P< 0.05$). A higher proportion of Sikh mothers 75% partially breast fed their child for 6-18 months. The corresponding figure was 25.86% for Hindu, 33.33% for Muslim and 50% for Christian mothers. The difference was found to be statistically significant ($P= < 0.05$). It was seen that 66.67% of mothers from urban background partially breast fed their child for 6-18 months as compared to only 19-81% of mothers from rural background. The difference was found to be statistically highly significant ($P<0.001$).

An observational, cross-sectional study was carried out on 89 mothers ending post-natal clinic at university hospital of the West Indies. The result wed the pattern of breastfeeding was not significantly affected by maternal parity education, employment or socioeconomic status.

Section V: Association between Physiological Outcome Variables and Selected Baseline Variables of New born.
The present study showed that there is no significant association between physiological outcome variables of new-born and baseline variables such as sex, birth weight, gestational age in weeks, and blood group of mothers.

The present study has concluded that there is relationship between breast feeding pattern and the selected physiological outcome variables of new-born. But it may vary depending on the duration of breast feeding. Within the first few days of assessment, we cannot conclude the benefits or significance of the breast feeding on the physiological outcome of new-born. The beneficial effects are still remaining along the way of life of new-born.

CONCLUSION

Findings of the study have shown that breastfeeding pattern had significant impact on physiological outcome variables of new born and also revealed that there was significant relationship between the outcome variables. Hence it can be concluded that good breastfeeding pattern helps the new born to maintain normal bowel and bladder pattern, hydration, normal body temperature, and reduces the level of bilirubin in the first few days.

IMPLICATION OF THE STUDY

NURSING PRACTICE: Today more than ever, health care reform calls on nursing to provide cost- effective care. Nurses are responsible for clinical judgments based on individual's responses to actual and potential health problems. In order to achieve positive outcomes to mother and their new-borns regarding lactation the nurse should:

- Work collaboratively with the obstetric community to ensure that women receive accurate and sufficient information throughout the prenatal period to make a fully informed decision about infant feeding.
- Promote hospital policies and procedures that facilitate breast feeding.
- Become familiar with local breast-feeding resources (eg.: well baby clinics, breast feeding medical and nursing specialists, lactation educators andconsultants, lay support groups and breast pump rental stations.) So that the needed patients can be referred appropriately
- Discourage pre lacteals feeds (like water, glucose water, formula and other fluids) to the new-borns.
- Encourage formal evaluation of breast-feeding including observation of position, latch, milk transfer, and the new-born condition twice daily
- Develop and maintain effective communication and co-ordination with other health care professionals to ensure optimal breast-feeding education, support and counselling.
- Advise mothers to continue their breast self-examination on monthly basis throughout lactation and to continue to have annual clinical breast examinations by their physicians.

NURSING ADMINISTRATION: According to the census of 2001, among 70% of postnatal mothers, the rate of initiation was 46% and duration of exclusive breast feeding up to 6 months was 17%; and up to lyr. 18%. "The healthy people 2010" target is rate of initiation 75% and duration up to 6 months 50% and up to l yr. 25%." Although breast feeding initiation rates have increased since 1990, exclusive breast-feeding initiation rates have increased since 1990, exclusive breast feeding, and initiation rates have shown little or no increase up to 6 months. Obstacles to initiation and continuation of breast feeding include insufficient prenatal education about breast feeding, disruptive hospital practices, policies, early hospital discharge, lack of timely routine follow up care and postpartum home health visits, maternal employment (especially in the absence fog work place facilities, and support for breast feeding), lack of family and broad societal support, media portrayal of bottle feeding as normative, commercial promotional of infant formula through distribution of hospital discharge packs, misinformation and lack of guidance and encouragement from health care professionals. So, the nurse administrators have a very important role to identify the problems and provide support and guidance in the community and hospital setting. So, nurse administrators have to make measures to promote, support and protect breast feeding. Some of the measures like:

- Promote breast feeding as a cultural norm and encourage family and societal support for breast feeding.
- Recognize the effect of cultural diversity on breast feeding attitudes and practices and encourage variations if it is appropriate and discourage if it is inappropriate.
- Provide facilities like crèche, for the employees to continue breast feed their infants during the working hours.

There were other significant positive correlations were found between the outcome variables. The findings were, Significant positive correlation between number of voids /24hrs and skin turgor f=412(P<0.01). Perfect positive correlation was found between level of bilirubin and loss of weight 7% of birth weight. f = 1(P < 0.01). Significant positive correlation between respiratory rate and level of bilirubin. f = 698(P < 0.01). Significant positive correlation

between respiratory rate and loss of weight 7% of birth weight. f = 698(P < 0.01). Significant positive correlation between number of meconium stools /24hrs and number of voids /24hrs. f= 0.447(P < 0.01). Significant positive correlation between skin turgor and level of bilirubin=.370 (P<0.05). There was no significant association between breast feeding pattern and the selected baseline variables of mother such as age, education, gravida, religion, area of residence, monthly income.There was no significant association between neonatal physiological outcome variables and baseline variables such as sex, birth weight, gestational age in weeks and blood group of mothers.

INTERPRETATION AND CONCLUSION

Findings of the study have shown that breastfeeding pattern had significant impact on physiological outcome variables of new-born and also revealed that there was significant relationship between the outcome variables. Hence it can be concluded that good breastfeeding pattern helps the new-born to maintain normal bowel and bladder pattern, hydration, normal body temperature, and reduces the level of bilirubin in the first few days.

Key words

Breastfeeding pattern, physiological outcome, new-born

REFERENCES

[1]. Prabhudeva SS. Exclusive breastfeeding the 1 hour- Early initiation and exclusive breastfeeding for 6 months can save more than one million babies. Nursing times August 2017; 3-5
[2]. Kameswara Rao AA. Breast feeding behaviour of Indian women. Indian journal of community medicine 2014; 29 (2): 62-64
[3]. Banapurmath CR, Nagaraj, Sobha MC. Breastfeeding practices in villages of central Karnataka. Indian paediatrics 2019; 33: 477-479.
[4]. Hania S, Andrea H, Berthold K. Effects of brief exposure to water, breast milk substitutes or other liquids on the success and duration of breastfeeding a systematic review. Acta paediatric 2016; 95:145-152.
[5]. Hania S, Andrea H, Berthold K. Effects of brief exposure to water, breast milk substitutes or other liquids on the success and duration of breastfeeding a systematic review. Acta paediatric 2006; 95:145-152,
[6]. Bavdekar. Infant feeding practices in Bombay slums. Indian paediatrics 2014;31: 1083-1087
[7]. American Academy of paediatrics policy statement. Breastfeeding and the use of human milk. Paediatrics Feb.2015; 115 (2): 496-506.
[8]. Yamauchi Y, Yamauchi I. Breastfeeding frequency during the first 24 hours after birth in full-term neonates. Paediatrics August 2020; 86 (2):171-175
[9]. Arun G. Initiating breastfeeding within one hour of birth, a scientific brief Available from; URL: http// world breastfeeding week/ org/pdf/UNICEF support letter.
[10]. Edmond k. Delayed breastfeeding initiation increases risk of neonatal mortality. Paediatrics 2016; 117: 380-386
[11]. Salariya EM, Earton PM, Cater JL. Duration of breastfeeding after an early initiation and frequent feeding. Lancet 178 (2): 1141-1143.
[12]. Kulkarni, Anjenaya S, Gujar R. Breastfeeding practices in urban community of Kalamboli, Navi Mumbai. Indian journal of community medicine October/December 2014; 21 (4): 179-180
[13]. Dinesh K, Neeraj A, Swami HM. Socio demographic correlates of breastfeeding in urban slums of Chandigarh. Journal of Nutrition 2006; 60 (11): 461-66
[14]. Poliadelphiaungler BP. Nursing research principles and methods. 7th ed. Philadelphia JB Lipincot Company; 1999.
[15]. Christenson PJ, Kenney JW. Nursing process: Application of conceptual models. 3rd ed. Mosby CV Company; 1990.
[16]. Subbiah N. A study to assess the knowledge, attitude, practice and problems of postnatal mothers regarding breastfeeding. Nursing journal of India Aug 2013
[17]. John R. Knowledge, attitude and practice of employed mothers about breastfeeding. Nursing journal of India April 2015
[18]. John C. Remon AE, Stephen S. Early initiation of breastfeeding and the risk of infant diarrhoea in rural Egypt. http//paediatrics.appublications.org/egi.\ Available from; URL:
[19]. Kusla RR, Bavdekar SB, Joshi SY. Exclusive breastfeeding protective efficacy. Indian journal of paediatrics 2015; (62): 449-453
[20]. Harit D, Faridi MMA, Aggarwal A.Lipid profile of term infants on exclusive breastfeeding and mixed feeding: A comparative study. European journal of clinical Nutrition advances online publication 2017 February; 28: 1-7

[21]. Mondal SK, Sen Gupta R, Gupta DN. Occurrence of diarrhoeal disease in relation to infant feeding practices in a rural community in West Bengal. India Acta Paediatric 2006; 85: 1159-1162
[22]. David H, Rubin, John ML, Peter K. Relationship between infant feeding and infectious illness: A prospective study of infants during the first year of life. Paediatrics 2020; AAP copy right: 464-71
[23]. Khadivavazadesh-T, Parsai S. Effect of exclusive breastfeeding and complementary feeding on infant growth and morbidity. East-Meritor- Health journal 2014; 10 (3): 289-94
[24]. Manoel C, Steven R, Arnold F. Effect of frequent breastfeeding on early milk production and infant weight gain. Available from; URL: Pub med
[25]. Walshaw CA, Owens JM, Scally AJ. Does breastfeeding method influences infant weight gain? Archives of disease in childhood 2018:93:292-296
[26]. Kramer MS, Matush L. Vanjlovish, platt RW. Effect of prolonged and exclusive breastfeeding on child height, weight, adiposity, and blood pressure at age 6.5 years. Evidence from a large randomized trial. BMJ Oct 2017,20 (335): 782-4
[27]. Karita S. Mikaelknip, Suvim. Maternal antibodies in breastmilk protect the child from enterovirus infections. Paediatrics May 2017;119 (5): 412-7
[28]. Luke C. Joanne K, Yue M.Li. Breastfeeding patterns, Time to initiation, and mortality Risk among new-borns in southern Nepal J Nutr 138: 599-603
[29]. Akobeny AK, Rananan AV, Heller RF. Effect of breastfeeding on risk of celiac disease: a systematic review and meta-analysis of observational studies. Arch Dis Child 2016; 91: 39-43
[30]. Quigley MA, Cumberland P, Cowden JM. How protective is breastfeedingagainst diarrhoeal disease in infants in England? A case-control study Arch Dis Child 2006: 91:245-250