

<https://doi.org/10.48047/AFJBS.7.7.2025.458-499>



African Journal of Biological Sciences

Journal homepage: <http://www.afjbs.com>



Research Paper

Open Access

Evaluation of knowledge, attitude, and practice of breastfeeding in nursing mothers at a tertiary care teaching hospital

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Volume 7, Issue 7 July 2025

Received: 15 May 2025

Accepted: 05 Jun 2025

Published: 09 July 2025

[doi:10.48047/AFJBS.7.7.2025.458-499](https://doi.org/10.48047/AFJBS.7.7.2025.458-499)

ABSTRACT

INTRODUCTION: Breastfeeding is essential as it provide optimal nutrition, strengthens infant immunity and it provide health benefits for both mother and infant. Therefore, this cross-sectional study aimed to evaluate the knowledge, attitude and practice (KAP) of breastfeeding in nursing mothers at a tertiary care teaching hospital. The study had been conducted in the Department of pediatrics, SVRRGGH, Tirupati. **METHODOLOGY:** we approached over 240 nursing mothers approximately and out of them, only 200 members agreed to participate. The study was carried out over six months. **RESULTS:** Among the 200 mothers, 59.5% were aged between 18–25 years, and 79.5% were housewives. Regarding delivery, 56% had normal vaginal delivery. Knowledge levels revealed that 87.5% believed breast milk was superior to formula, 83.5% accepted colostrum feeding, and 70% acknowledged its role in boosting immunity and 37% initiated breastfeeding within 30 minutes. Attitudinal data reflected that 61.5% felt emotional fulfilment during breastfeeding and 47.5% of mother not preferred infant formula. Practice data shows that 62% of mother are nursing the baby more than 8 times in a day, 67.5% of mother are likely to start complementary feeding at 6 months, 77% of mother fed only breastmilk to their infant for the first 6 months, 76% avoided pre-lacteal feeds. **CONCLUSION:** Our study highlights that even though there is adequate knowledge present in mothers, there is still a need for awareness, particularly in terms of exclusive breastfeeding, continued practices and complementary feeding to improve the breastfeeding practices, which can be overcome by conducting programmes on promoting breastfeeding by the government or healthcare providers. The health benefits for both mothers and infants can be enhanced by creating a secure environment for mothers to breastfeed in public places. **Key words:** Exclusive breastfeeding, colostrum, Lactation support, complementary feeding, infant formula.

INTRODUCTION

BREASTFEEDING:

One of the most important aspects of an infant phases is breastfeeding. Nursing or lactation gives the newborn a complete nutritional support and increases their emotional dependence on the lactating parent.¹

Both the **United Nations International Children's Emergency Fund (UNICEF)** and the **World Health Organization (WHO)** advise new mothers to start breastfeeding immediately as early as possible after giving birth and to perform exclusive breast feeding **(EBF)** for the first six months of the infant and to continue it until the child is over two years old. Additionally, for the first six months of their life, newborns should only be breastfed according to the **American Academy of Pediatrics (AAP)**.²

It's beneficial for both mother and infant to breastfeed. Breast milk may change as an infant gets older to meet their growing nutritional needs. Moreover, breastfeeding can protect the mother and infant from a number of acute and chronic diseases.³

Enhancing mother health, reducing baby and child morbidity and mortality, and helping in controlling expenses are all benefits made possible by breastfeeding. The benefits of human milk on the health of both mothers and infants are still being supported by researchers.⁴

Colostrum is the first milk secreted immediately after birth during the first few days and it helps infant to develop better immune system and its composition is different from mature milk.⁵

Prolactin and oxytocin are the two hormones that directly impact lactation. Lactation is indirectly influenced by several other hormones, including estrogen. The brain receives

sensory impulses from the breast when a newborn feeds. The anterior lobe of the pituitary gland secretes prolactin, and its posterior lobe secretes oxytocin in response.⁶



Figure-1: Components of breastmilk

Water is a major component, and breast milk contains approximately 87% of water with the milk produced at the beginning of the feeding (foremilk) and has greater amounts of fats, calories, and vitamin A and E in hindmilk than in foremilk.⁷ Since it contains the highest concentration of water, it helps in maintaining the newborn's hydration, regulates their body temperature, and facilitates the smooth delivery of other nutrients. The **National Council for Medical Research and Health** (2012) states that a woman should be advised to drink a glass of water whenever she feels thirsty while breastfeeding. It is essential for breastfeeding mothers to maintain adequate hydration to support optimal milk production.⁸

HORMONES:

The time after childbirth when milk is produced is known as the lactation cycle. Only during lactation can the breast reach a mature, functioning state. Pregnancy marks the start of the lactation cycle. Pregnancy induces the development of the mammary gland. When the placenta is delivered, endocrine activation begins, which results in a large amount of milk forming.

The newborn must continue to take milk effectively and consistently within the range of normal function in order for production of milk to continue.

During the second trimester, lactogenesis (milk synthesis) begins. It has been divided into two phases, known as lactogenesis I and lactogenesis II and is regulated by hormones such as human placental lactogen, estrogen, insulin, cortisol, progesterone, and prolactin.

In lactogenesis-I, the mother develops ability to yield various milk components such lactose, casein, α -lactalbumin, and lactoferrin.

The placenta's delivery initiates the second stage, known as secretory activation, which starts about 24–72 hours following birth. When the placenta gets out, the serum maternal progesterone rapidly drops, which triggers the secretory phase of lactogenesis, also known as lactogenesis II. This results in subsiding of estrogen levels while prolactin, insulin, and cortisol levels remain high. ⁹ (Fig-2)

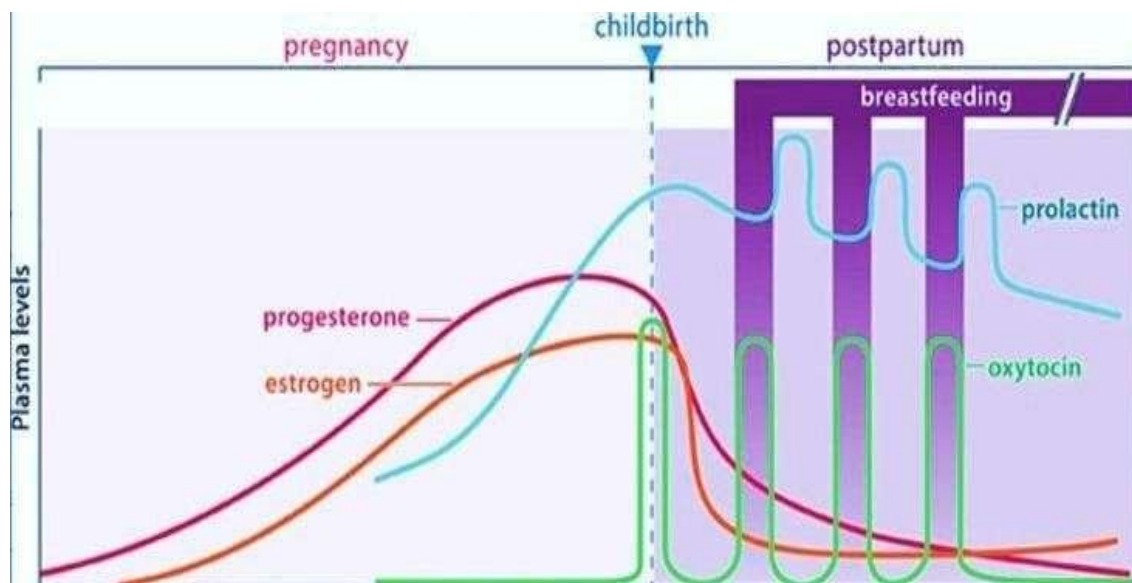


Figure-2: Hormone levels in women during pregnancy, child birth and immediately after child birth.

MECHANISM OF MILK PRODUCTION:

The two hormones, prolactin and oxytocin have direct impact on breastfeeding. Estrogen is one of the other hormones that indirectly affect lactation. The production of milk by the alveolar cells depends on prolactin. The blood prolactin level increases significantly during pregnancy, which promotes the development of the mammary tissue in order to prepare it for milk production. Prolactin is no longer blocked. Progesterone and estrogen levels rapidly decrease and milk production starts after delivery.

The blood prolactin level rises as a baby nurse, which promotes the alveoli to produce more milk. Its primary function is to produce milk for the succeeding feed because the prolactin level peaks around half an hour after the beginning of the feed.¹⁰

The other hormone which plays major role in milk ejection is Oxytocin. It is produced more quicker than prolactin. Oxytocin makes the myoepithelial cells around the alveoli to contract. As a result, the milk that has collected in the alveoli moves forward and fills the ducts. And makes the milk to flow out for the current feed. This oxytocin reflex is called as the "milk ejection reflex".¹¹

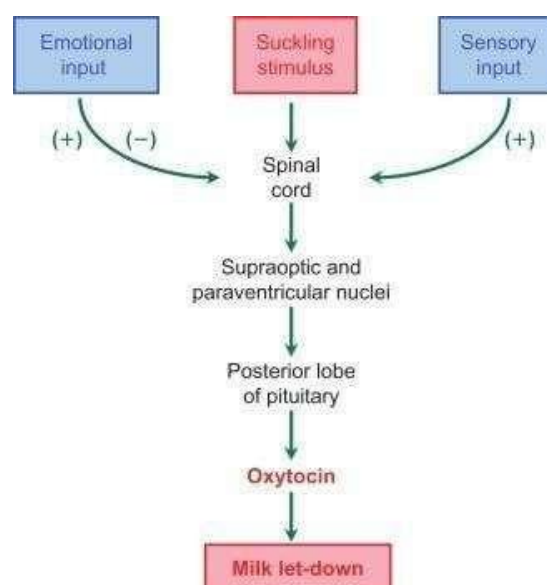


Figure-3: Mechanism of milk ejection reflex

Stages of milk production occur, with the first stage typically initiating prior to the infant's birth. After labor the first milk produced is colostrum. Pre-colostrum can sometimes occur before the postpartum phase. Colostrum is a thick yellowish milk. Its composition and function differ from that of mature breast milk. It is produced in small quantities but is extremely concentrated, providing the infant only the correct quantity of nutrients and antibodies.¹²

Colostrum and breast milk are the main sources of bioactive components for babies. The most effective and natural immunity enhancer is colostrum. Infants who receive breastfeeding are primarily protected against infections by secretory IgA antibodies, but they are also protected by other bioactive substances. The infants' developing immune system receives additional support in the early stages of lactation by IgA, anti-inflammatory substances and more likely immunologically active cells.¹³

STAGES OF BREAST MILK:

- **Colostrum** – Secreted during the initial 3-4 days after delivery. It consists of large amounts of antibodies and immune-components.
- **Transitional milk** – Secreted after 3 to 4 days until 2 weeks. It consists of more fat content while protein and immunoglobulin content are decreased.
- **Mature milk** – It is thin and watery. It contains all the nutrients.
- **Pre-term milk** – It first appears if delivered before 37 weeks.
- **Fore milk** – It is watery and rich in proteins, sugars, vitamins.
- **Hind milk** – It appears at the end of the feed and is rich in fat.¹⁴

BENEFITS OF BREASTFEEDING:

Breastfeeding seems to have beneficial effects on the mother's physical and mental health across her postpartum, lactation, and beyond. Lactating mothers reported some medical visits with a lower risk of respiratory, cardiocirculatory, and gastrointestinal disorders and fewer symptoms corresponding to mental issues than non-lactating mothers.¹⁵

BENEFITS TO MOTHER:

Breastfeeding may help in preventing

1. Postpartum depression:

Breastfeeding could impact a mechanism that controls the release of cortisol during the day, maybe lowering the risk of postpartum depression by maintaining a steady level of the hormone. Breastfeeding has been associated to lower levels of cortisol and adrenocorticotrophic hormone (ACTH). This process begins with skin-to-skin contact before the breastfeeding, and the longer the duration of contact, the lower the cortisol levels.¹⁷

2. Maternal stress:

The physical stress of maintaining a baby together with other household responsibilities, short sleep duration, variations in body image, and the emotional burden of seeking to be a good mother. Due to its effect on lowering cortisol and ACTH levels, Breastfeeding could be working by lowering stress levels, which in turn may lower anxiety level.¹⁸

3. Breast cancer:

Decreased oestrogen levels during lactation lower the rates of cell division and proliferation. Toward the end of the breastfeeding period, tissue

exfoliation and epithelial apoptosis may help lower the chances that mutated cells will accumulate in breast tissues.¹⁹

4. Diabetes:

During the lactation, the risk of type 2 diabetes decreases by 4–12%. However, the risk was 50% higher for women who never breastfeed than for the ones who breastfeed so, even at short periods of one to three months is considerable.²⁰

5. Osteoporosis:

Breastfeeding may reduce the chance of developing osteoporosis later in life. Due to compensatory mechanisms that increase intestinal and renal absorption of calcium and the absorption of it from the bones, bone mineral density has been restored. Women drop calcium during the breastfeeding period (with the production of 800 ml/day milk, a woman can transfer as much as 200 mg calcium daily), which is recovered after weaning and with the occurrence of menstruation.²¹

6. Metabolic syndrome:

This condition is caused by a number of abnormalities, including as resistance, obesity, arterial hypertension, and dyslipidemia, all of which raise the risk of serious complications and mortality. Breastfeeding over a longer duration of time is known to decrease the incidence of multiple sclerosis (MS), even after controlling for other factors including body mass index. There is a 12% decrease in the chance of developing multiple sclerosis for every year of lactation.²²

BENEFITS TO INFANT:

A decreased frequency and severity of respiratory infections, otitis media, and diarrhea are associated to exclusive breastfeeding for at least three months. Exclusive breastfeeding for at least 4 months is associated with a lower incidence of allergic disease (asthma, atopic dermatitis) during the first 2 to 3 years of life in at-risk infants (infants with at least one first-degree relative presenting with allergy). Breastfeeding has been associated to a decreased risk of childhood and adolescent obesity, as well as a reduced risk of high blood pressure and high cholesterol in adulthood.²³

Infants who are breastfed have stronger immune systems and are more resistant to infectious diseases than others who are formula-fed. Additionally, the incidence of chronic illnesses is lower among them. Infants benefit nutritionally, growth and developmentally due to the optimal content of human milk.²⁴

DIETARY CHANGES IN BREASTFEEDING MOTHER:

Breastfeeding mothers have to consume a healthy, well-balanced diet to maintain their health and produce enough milk for their infants.

1. Calories:

Breastfeeding mothers should be healthy and strong to produce enough milk for their infants. In order to reach the energy levels, they should eat the nutritious and well-balanced diet. Energy producing foods include Whole grains, lean proteins, fruits, vegetables, and healthy fats etc.,

2. Proteins:

Protein is necessary for both tissue healing and maintaining optimal milk production. 71 grams of protein should be included in diet. Protein source food includes eggs, meat and dairy products.

3. Calcium:

Calcium is essential for the mother bone health and for the proper development of the baby's bones and teeth. 1000mg of calcium should be added in the diet. Sources of calcium include Dairy and milk products, leafy vegetables etc.,

4. Fat:

Development of the baby is mainly depended on the fats. Sources of fat include nuts, seeds, avocado and ghee.

5. Iron:

Anemia is prevented by the iron and it helps in maintaining the mother energy level. 9- 10 mg of iron rich supplements should be included in the diet per day. The source includes beans, spinach, cereals and dried fruits.

6. Vitamin A and D:

They support the immune function. Aids in absorption of calcium and bone health is developed. The source includes sweet potato, carrot and fish. The vitamin D supplement may be needed in area with sufficient exposure to sunlight.

7. Vitamin B12 and B9:

It is essential for mother energy and nerve function [vitamin B-12]. It is mainly important for RBC production and preventing defects in the infants [vitamin B-9]. Sources include leafy green vegetables, beans, peas and nuts.

8. Fluids:

Hydration helps in maintaining the milk production. Consuming 2.5 liters to 3.5 liters per day prevents dehydration. Herbal tea products like chamomile, fennel, and fenugreek also have benefits in enhancing milk supply.

9. Zinc:

It helps in the immune function, tissue repair, and growth of the baby. Zinc sources seeds, nuts and other foods.

Supplements: There are some cases when a prenatal or postnatal vitamin may be advised, particularly in cases when there are dietary limitations or inadequate intake of specific nutrients.²⁵

FOODS TO BE AVOIDED:

Alcohol and Caffeine: Mother and her unborn child may suffer if coffee is used excessively. It's recommended to wait a few hours after drinking coffee or caffeinated drinks before breastfeeding, and use of alcohol should be avoided.²⁶

FACTORS THAT REDUCE BREASTMILK:**❖ Feeling stressed:**

The biggest factor reducing the production of breastmilk is stress, particularly in the initial weeks after delivery. Between lack of sleep and adjusting to the baby's schedule, rising levels of certain hormones such as cortisol can dramatically reduce milk supply.

❖ Formula feeding:

Breastfeeding exclusively increases after delivery which leads to increased milk production. Breast milk production operates on a supply-and-demand system. The more

frequently and effectively a baby breastfeeds, the more milk is produced. When formula feeding is introduced, it reduces the frequency and intensity of breastfeeding, which signals the body to produce less milk over time.

❖ **Drinking too little water:**

Dehydration can reduce milk supply, as the body needs adequate fluid to produce breast milk. However, it's important to note that drinking excessive amounts of water won't increase milk production.

❖ **Becoming ill:**

An illness like the flu, cold or stomach virus won't stop it from producing milk. But associated symptoms like fatigue, diarrhoea, vomiting, or a loss of appetite definitely can.²⁷

REASONS FOR INSUFFICIENT BREASTFEEDING

- The infant is not sucking well and has a poor attachment to the breast. baby may seem restless during a breastfeed and may pull away or tug at the breast.
- Feeding is short, hurrying or irregular.
- There is a connection between milk production and milk transport. If the milk is not being nursing from the breast, the milk production will decrease. the infant nursing milk more efficiently than sufficient milk production will usually follow.²⁸

Some of the ongoing effect can cause delay in the milk production. It includes some conditions related to baby's birth (caesarean sections), early birth, birth stress, and specific medications and excessive bleeding.²⁹

Intrinsic causes of low milk production include developmental and endocrine conditions that alter glandular epithelium development and function. Breast hypoplasia is a primary reason for an inherent inability to produce sufficient milk.³⁰

Socio-cultural factors are important because a lack of information about breastfeeding, pre-lacteal feeding, and the use of substances other than breast milk in the days.³¹ Pre-lacteal feeding is associated with delayed secretory activation and shorter breastfeeding duration.³²

REFLEXES IN THE BABY:

For proper breastfeeding, the baby's reflexes are crucial. The three primary reflexes are swallowing, suckling, and rooting.³³

Beginning of thirty-second week of pregnancy, an infant begins to suck anything that comes into contact with their palate this is known as the rooting reflex. The infant swallows when the milk fills their mouth, this is the swallowing reflex.³⁴ The infants who are born in 28 weeks of gestation, preterm infants are able to grasp the mammilla, and by about 31 weeks, they are able to breast-feed and extract some milk. Between weeks 32 and 35 of pregnancy, the ability to swallow, breathe, and nurse is coordinated. Most babies are able to breastfeed exclusively by the time they are 36 weeks in gestation.³⁵

METHODOLOGY

Study design: This study is a cross-sectional questionnaire-based survey.

Study site: The study was conducted in the Department of pediatrics, SVRRGGH, Tirupati.

Study duration: The study was carried out over six months, from November 2024 - April 2025.

Study population: As part of the study, we approached over 240 nursing mothers approximately and out of them, only 200 members agreed to participate.

Study materials:

- Informed consent form (ICF).
- Knowledge, attitude & practice questionnaire

Study criteria: - Inclusion criteria:

- Lactating mothers who are in good health condition without any serious illness and who are willing to participate are included in the study.
- This study includes mothers of children under age of 3 years.

Exclusion criteria:

- Mothers less than 18 years old.
- Patients who were unwilling to participate in the study.
- Infants with serious health condition.
- Mothers with serious health condition.

METHOD OF DATA COLLECTION:

This study was carried out after obtaining permission from the institutional review board at Sri Padmavathi School of Pharmacy. Nursing mothers who were in good health without any serious illness and those who were willing to participate were included in the study, which was conducted in the department of pediatrics at SVRRGGH, Tirupathi.

We used a specially designed questionnaire to collect data. The questionnaire consists of several sections.

- Demographic details – mother age, occupation, type of delivery, regarding counselling, infant gender, diet of study population.
- Knowledge related questions – these questions assess the knowledge of mother in breastfeeding.
- Attitude related questions – this section determine the attitude of mother towards breastfeeding.
- Practice related questions – these questions assessed the actual practice of mother related to breastfeeding.

Each session with Mother lasted between 10 to 15 minutes, while the data gathering was conducted within a period of 6 months.

The data for this study was collected through direct interaction with mothers who were willing to participate. The survey was conducted across more than 240 mothers in that only 200 mothers were agreed to participate in the study. The questions were explained in their regional languages.

The participants came from various backgrounds, which allowed us to gather insights into a wide range of breastfeeding practices and experiences.

After collecting the data, we carefully studied the responses to understand awareness of mothers on breastfeeding, their attitude towards it, and their practices. This helped us to identify areas where additional support or education is necessary.

Overall, this method helped us obtaining useful and reliable information. It also contributed in increasing awareness among the mothers.

STATISTICAL ANALYSIS:

Data was analyzed using SPSS and MS Office.

RESULTS

DEMOGRAPHIC DETAILS OF MOTHER:

TABLE – 1: AGE GROUP OF PARTICIPANTS:

S.No.	Age (in years)	No. of participants	Percentage (%)
1.	18-25	119	59.5
2.	25-30	67	33.5
3.	30-35	14	7
4.	35-40	0	-

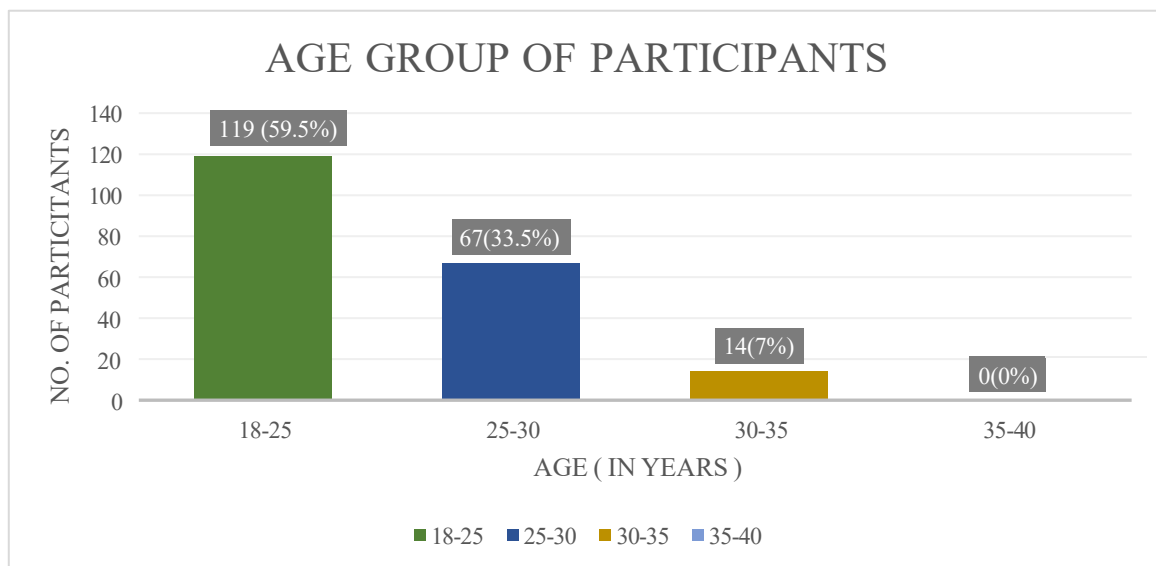
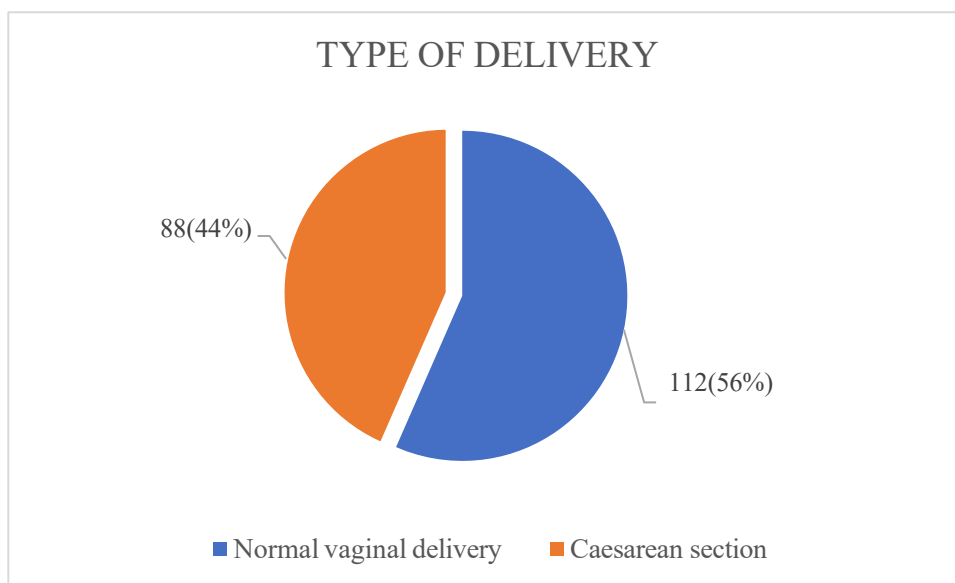


Figure-4: Age group of participants

Out of 200 participants, 119 (59.5%) participants were under the age group of 18-25, 67 (33.5%) participants were under the age group of 25-30, 14 (7%) participants were under the age group of 30-35 and no participants were under the age group of 35-40.

TABLE-02: TYPE OF DELIVERY:

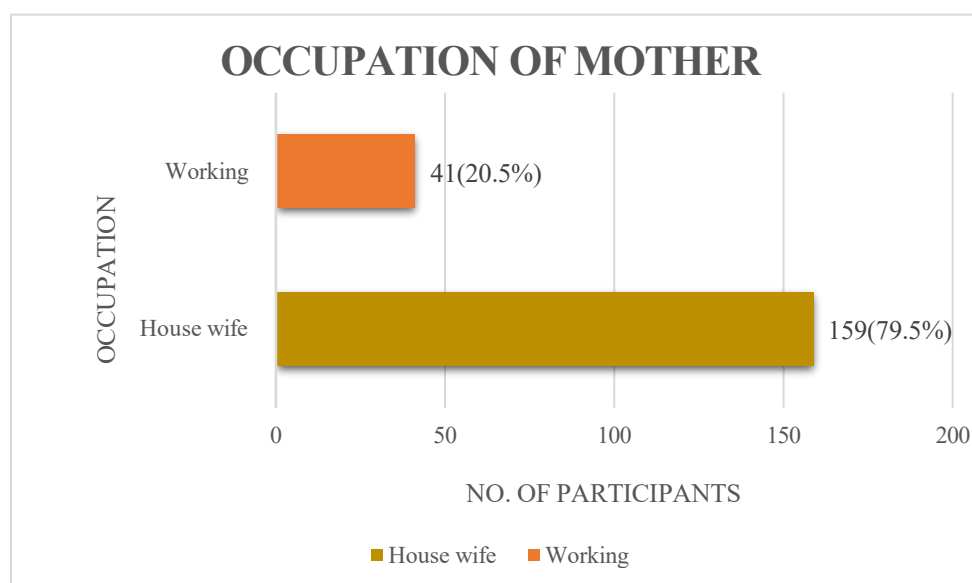
S.No.	Type of delivery	No. of participants	Percentage (%)
1.	Normal vaginal delivery	112	56
2.	Caesarean section	86	44

**Figure-05: Type of delivery**

Out of 200 participants, 112 [56%] participants with normal delivery and 88 [44%] participants with caesarean.

TABLE-03: OCCUPATION OF MOTHER:

S.No.	Occupation	No. of participants	Percentage (%)
1.	House wife	159	79.5
2.	Working	41	20.5

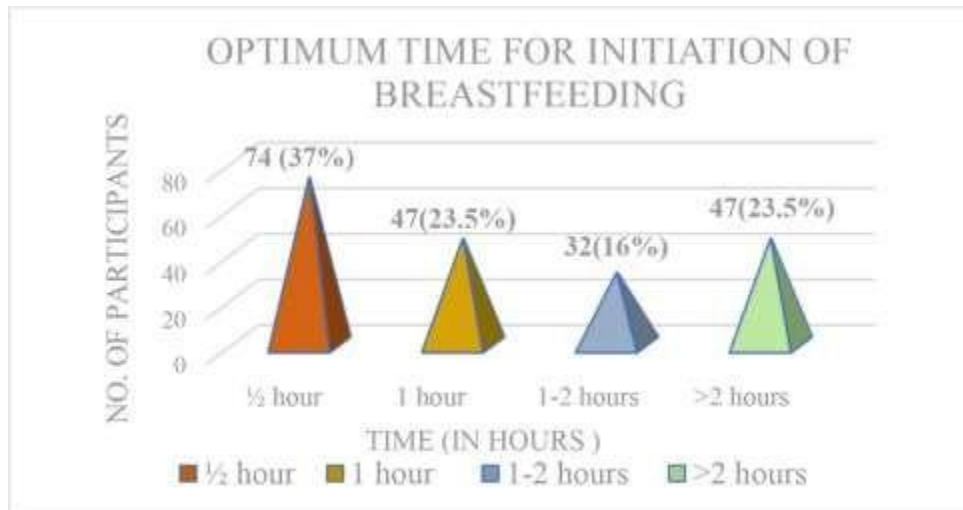
**Figure-06: Occupation of mother**

In 200 participants, 159 (79.5%) participants were house wife and remaining 41 (20.5%) participants were working women.

TABLE-4: KNOWLEDGE OF BREASTFEEDING MOTHERS:

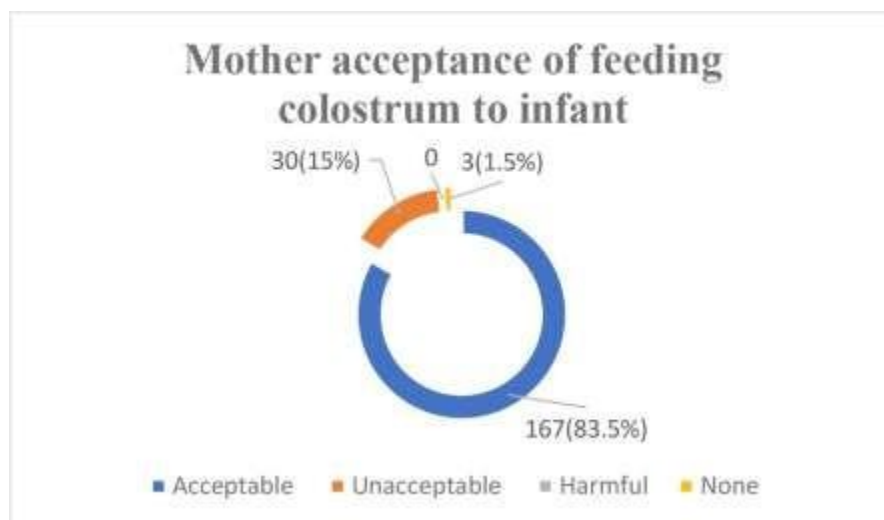
Attribute	Number of participants	Percentage (%)
what is the optimum time for initiation of breastfeeding after delivery.		
½ hour	74	37%
1 hour	47	23.5%
1-2 hours	32	16%
>2 hours	47	23.5%
Do you know that infant should receive exclusive breastfeeding during first 6 months.		
Yes	187	93.5%
No	13	6.5%
Do you think colostrum should be given to infant.		
Acceptable to infant	167	83.5%
Unacceptable	30	15%
Harmful	-	-
None	3	1.5%
Do you know that breastfeeding boost the baby immunity		
Yes	140	70%
No	23	11.5%
Don't know	37	18.5%
At which month weaning should be started		
3 months	-	-
4 months	20	10%
6 months	122	61%
>6 months	58	29%
Do you know breastmilk is superior to formula milk in fulfilling infant's necessary dietary requirements		
Yes	175	87.5%
No	25	12.5%

Figure-07: Optimum time for initiation of breastfeeding after delivery



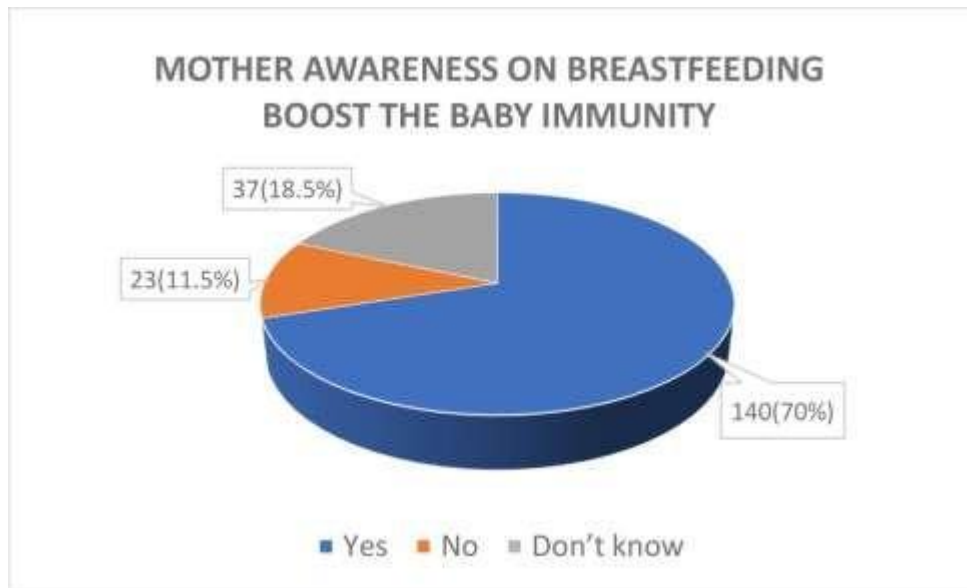
Out of 200 participants, 74 (37%) of mothers said that optimum time for initiation of breastfeeding is 1/2 hour, 47 (23.5%) of mothers told that 1 hour is optimum time for initiation, 32(16%) of mothers told that 1-2 hours is optimum time for initiation and 47(23.5%) of mothers told that >2 hours is optimum time for initiation of breastfeeding.

Figure-08: Mother acceptance of feeding colostrum to infant



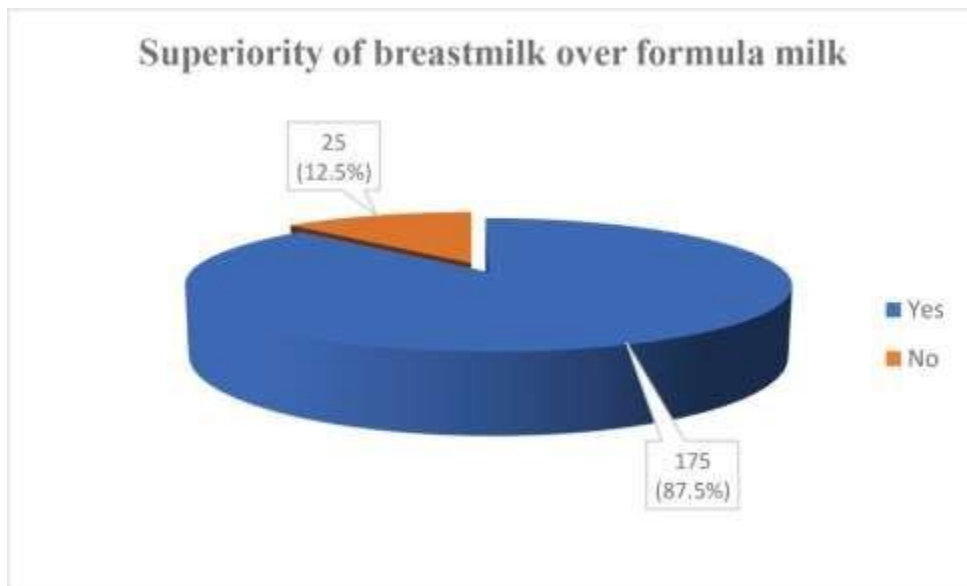
Among 200 participants, 167 (83.5%) mothers accepted to feed colostrum to their infant, 30 (15%) mothers not-accepted to feed it to their infant, 3 (1.5%) mothers are totally not aware of know colostrum.

Figure-09: Mother awareness on breastfeeding boost the baby immunity



On an average, out of 200 participants, 140 (70%) mothers aware that breastfeeding boosts the baby’s immunity, 37 (18.5%) mothers not aware that breastfeeding boost the baby’s immunity and remaining 23 (11.5%) totally don’t know about breastfeeding boost the baby immunity.

Figure-10: Superiority of breastmilk over formula milk

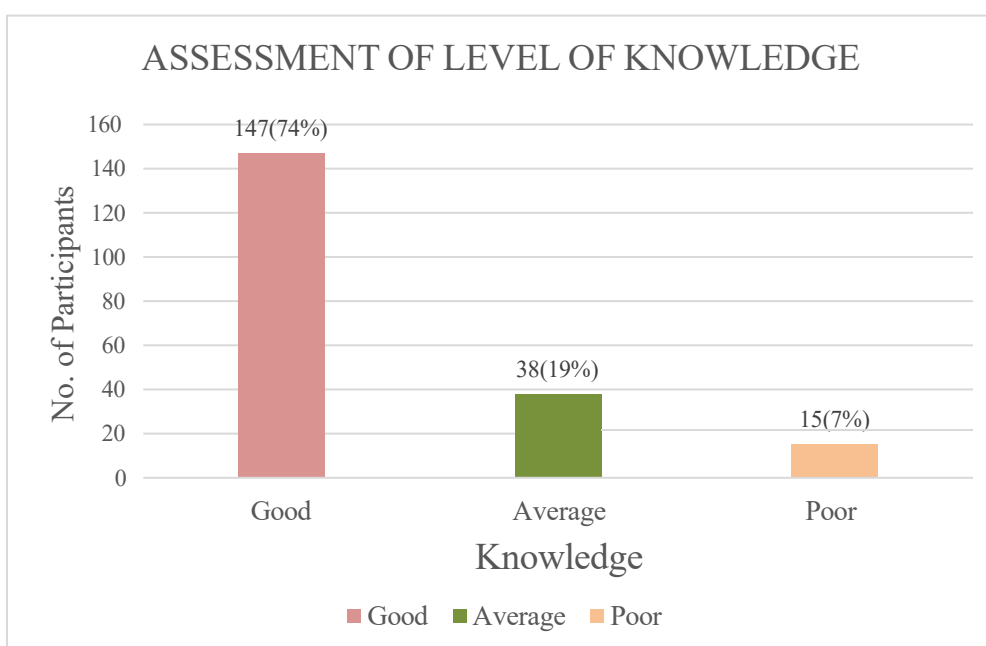


Over 200 participants, 175 (87.5%) participants thought that breastmilk is superior to formula milk and remaining 25 (12.5%) participants thought that breastmilk is not superior to formula milk in fulfilling the infant dietary needs.

TABLE-05: ASSESSMENT OF KNOWLEDGE ON BREASTFEEDING:

S. No.	Level of knowledge	No. of participants	Percentage (%)
1.	Good	147	74
2.	Average	38	19
3.	Poor	15	7

Figure-11: Assessment of knowledge on breastfeeding

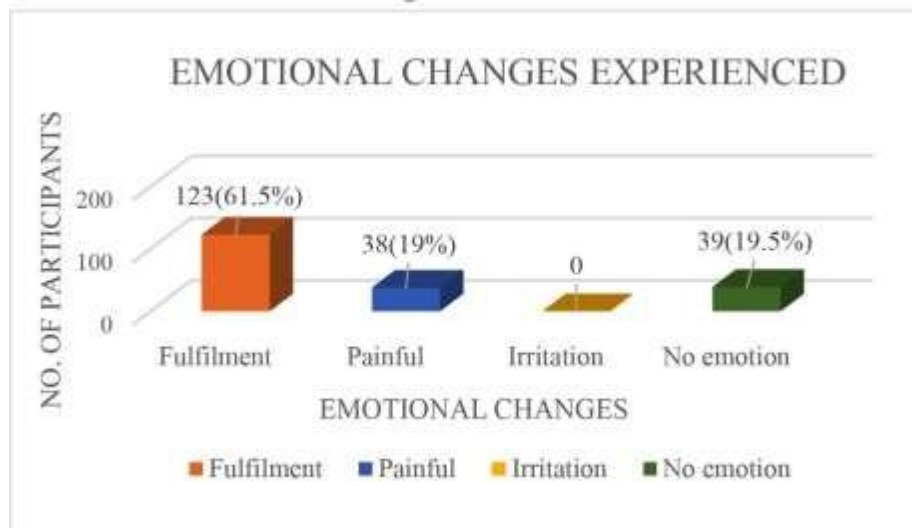


Out of 200 participants, 74% of the participants has good knowledge, 19% of the participants has Average knowledge and remaining 7% of the participants has poor knowledge on breastfeeding.

TABLE-6: ATTITUDE OF BREASTFEEDING MOTHERS:

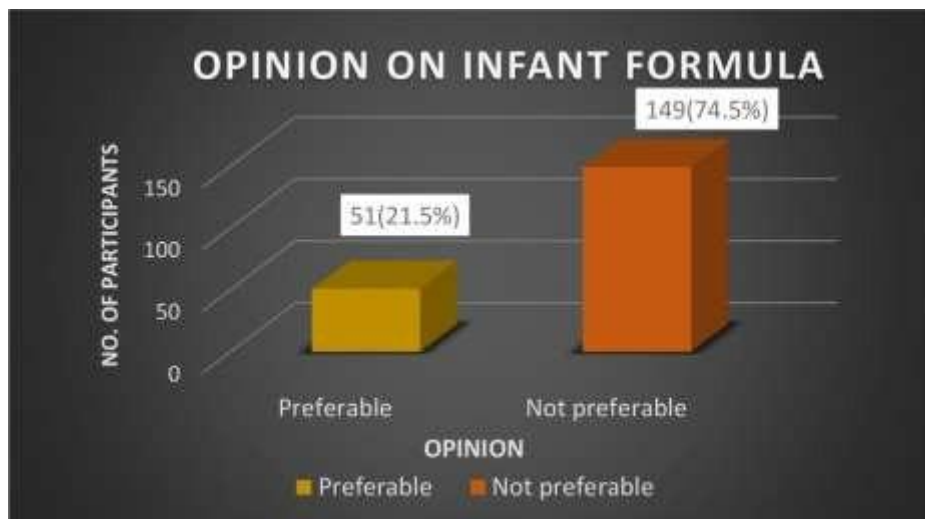
Attribute	Number of participants	Percentage (%)
Do you experience any emotional changes while breastfeeding		
Fulfilment	123	61.5%
Painful	38	19%
Irritation	-	-
No emotion	39	19.5%
Do you feel any difficulty while breastfeeding		
Yes	103	51.5%
No	97	48.5%
Do you feel embarrassing during breastfeeding in public		
Yes	109	54.5%
No	91	45.5%
Do you experience any of the following issue during lactation		
Depression	32	16%
Anxiety	-	-
Mood swings	59	29.5%
None	114	57%
What is your opinion on pumping breastmilk		
Good	38	19%
Bad	84	42%
No idea	78	39%
What is your opinion on infant formula		
Preferable	51	25.5%
Not preferable	149	74.5%

Figure-12: Emotional changes experienced by mother during breastfeeding practice



In 200 participants, 123(61.5%) mothers felt fulfilment, 38(19%) mothers felt painful, 39 (19.5%) mothers were emotionless while breastfeeding and no mother felt irritation while breastfeeding.

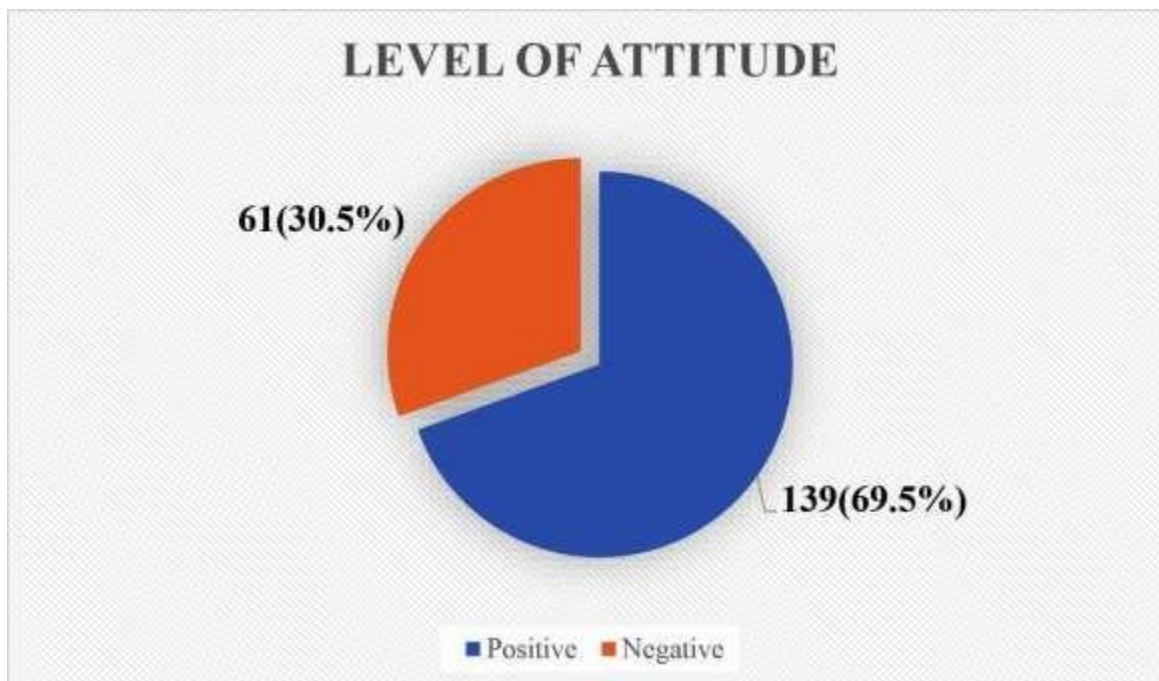
Figure-13: Mother opinion on infant formula



Out of 200 participants, 149 (74.5%) participants did not prefer to feed infant formula to their infant and 51(21.5%) participants are willing to feed infant formula to their infant at starting stages of their newborn.

TABLE-07: ASSESSMENT OF ATTITUDE TOWARDS BREASTFEEDING:

S.No.	Level of attitude	No. of participants	Percentage (%)
1.	Positive	139	69.5
2.	Negative	61	30.5

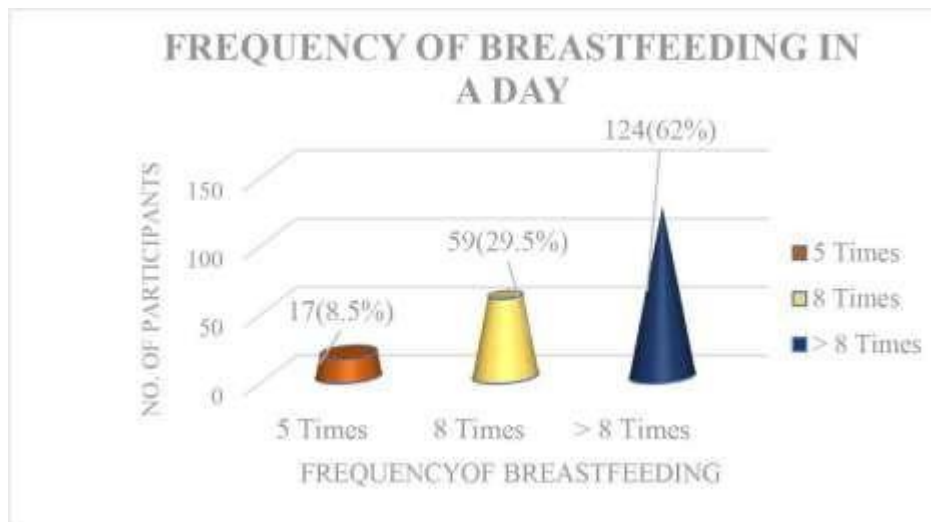
**Figure-14: Assessment of attitude towards breastfeeding**

Over 200 Participants, 69.5% of the participants has positive attitude and remaining 30.5% has the negative attitude.

TABLE-08: PRACTICE OF BREASTFEEDING MOTHERS:

Attribute		Number of participants	Percentage (%)
Frequency of breastfeeding in a day	3 times	-	-
	5 times	17	8.5%
	8 times	59	29.5%
	>8 times	124	62%
At which month complimentary feeding started			
	2 months	-	-
	4 months	20	10%
	6 months	135	67.5%
	>6 months	45	22.5%
Duration of exclusive breastfeeding			
	4 months	13	6.5%
	6 months	175	87.5%
	8 months	7	3.5%
	>8 months	5	2.5%
Which of the following pre-lacteal was given to baby before breastfeeding			
	Honey	43	21.5%
	Ghee	-	-
	Sugar water	5	2.5%
	None	152	76%
What type of feeding are you using for your baby <6 months			
	Breast milk	154	77%
	Formula milk	10	5%
	Cow/buffalo milk	-	-
	Breast milk + buffalo/cow milk	36	18%
Do you agree to continue breastfeeding after initiation of complementary feeding			
	Agree	194	97%
	Disagree	6	3%
Daily water consumption of lactating mother			
	1.5-2 liters	52	26%
	2-3 liters	91	45.5%
	3-4 liters	36	18%
	5 liters	21	10.5%

Figure-15: Frequency of breastfeeding in a day



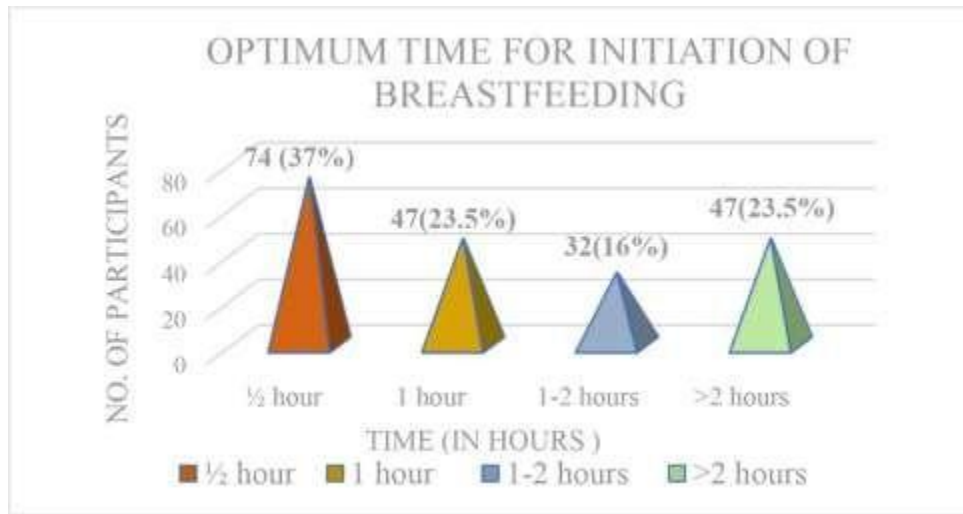
Out of 200 participants, 124 (62%) participants were nursing their infant more than 8 times in a day, 59 (29.5%) participants were nursing their infant 8 times in a day and remaining 17 (8.5%) participants were nursing their infant 5 times in a day and no participants were nursing less than 3 times in a day.

Figure-16: Initiation of complementary feeding



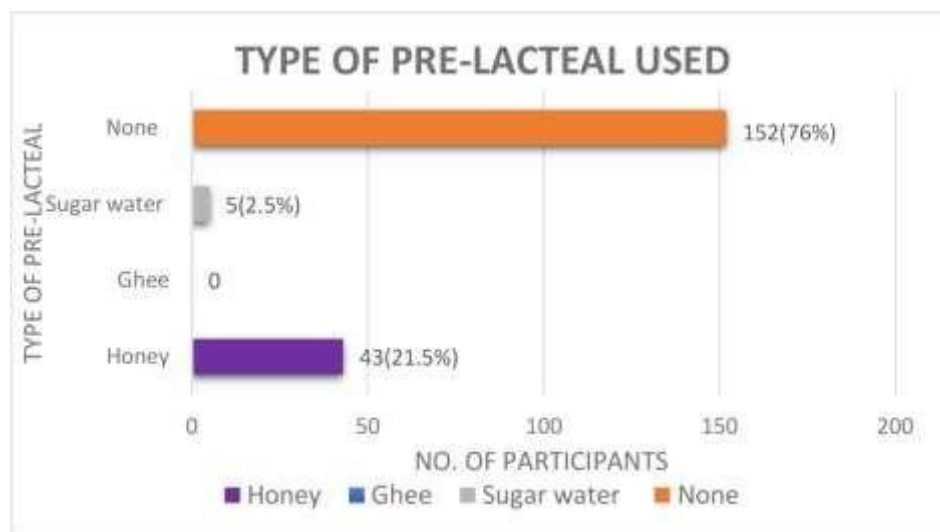
Among 200 participants, 135 (67.5%) participants started complementary feeding at 6 months, 45 (22.5%) participants started complementary feeding after 6 months, 20 (10%) participants started complementary feeding at 4 months and no participants started complementary feeding at 2 months.

Figure-17: Duration of exclusive breastfeeding



Out of 200 participants, 175(87.5%) participants were exclusively breastfeeding their infant for 6 months,13 (6.5%) participants for 4 months. 7 (3.5%) and 5 (2.5%) participants exclusive breastfeeding 8 and > 8 months respectively.

Figure-18: Type of pre-lacteal used for infant before initiating breastfeeding



Over 200 participants, majority of the participants 152 (76%) does not use any pre-lacteals before initiation of breastfeeding, 43 (21.5%) participants used honey as pre-lacteal, 5(2.5%) participants used sugar water as pre-lacteal and no participant chose ghee as a pre-lacteal.

TABLE-09: THE ASSESSMENT OF BREASTFEEDING PRACTICES:

S.No.	Level of breastfeeding practice	No. of participants	Percentage (%)
1.	Good	142	71
2.	Average	43	21.5
3.	Poor	15	7.5

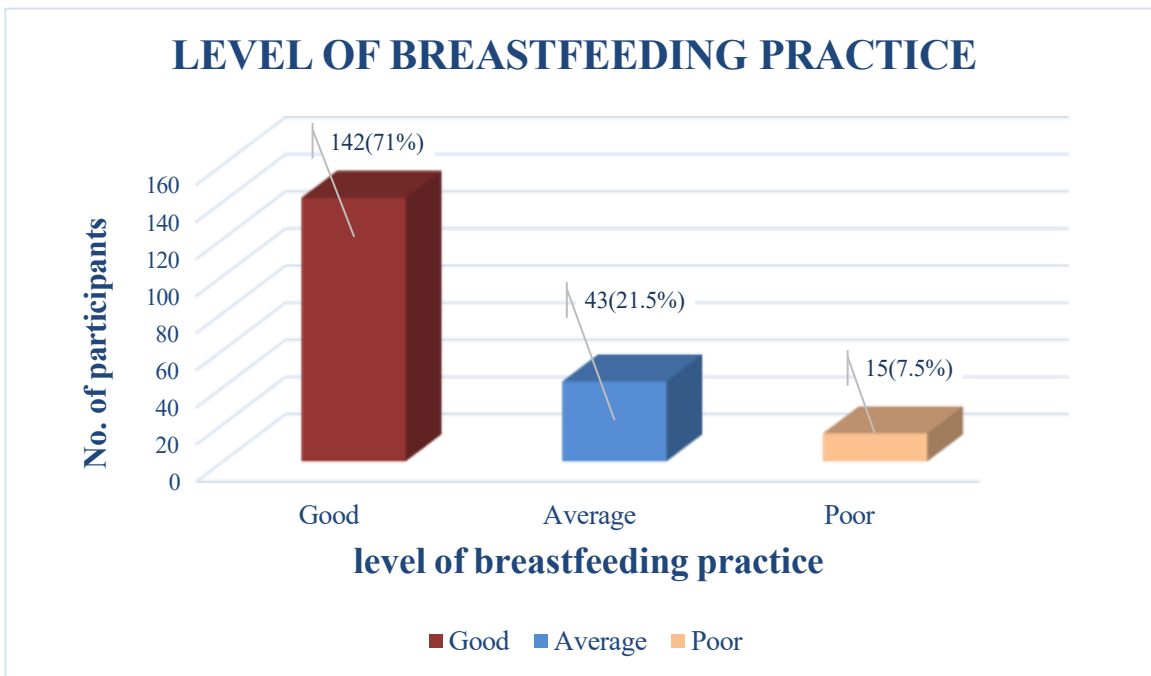


Figure-19: The assessment of breastfeeding practices

Over 200 participants, 71% of the participants had good breastfeeding practice, 21.5% of the participants had average breastfeeding practice and 7.5% of participants had poor breastfeeding practice.

DISCUSSION

In our study, 59.5% of mothers were under the age group of 18-25, followed by 33.5% of mothers were under the age group of 25-30. Only 7% were under the age group of 30-35. This indicates that a majority of mothers in their early twenties and thirties are involved in childbearing and nursing.

79.5% of the mothers were housewives and only 20.5% of mothers were working. This difference is important to consider, as stay-at-home may have more time and opportunity to practice breastfeeding compared to working mothers, who may face challenges related to time and workplace support.

Normal vaginal delivery was reported by 56% of mothers, while 44% of mothers reported caesarean sections. This is relevant because caesarean deliveries can delay the initiation of breastfeeding.

Knowledge of breastfeeding mother:

In 200 participants, 37% of mothers know that the optimum time for initiating breastfeeding is within half an hour, followed by 16% within 1-2 hours, 23.5% within 1 hour, and the remaining 23.5% more than 2 hours. This indicates a lack of awareness of the significance of early initiation of nursing. Similarly, **Harish Chand et.al.** reported that **34.3%** mothers had knowledge on early initiation on breastfeeding.

Out of 200 participants of mothers, 83.5% of mothers responded that colostrum should be given, showing good acceptance. 15% considered it is unacceptable, and only 1.5% had no idea. This highlights a positive perception of colostrum's benefits among mothers. Similarly, **Rahma Abdelseed** reported that **80%** of the mothers recognized that colostrum feeding is important.

Of all the respondents, 70% agreed that breastfeeding boosts the baby's immunity, 11.5% disagreed, and 18.5% were unsure. The remaining minority still has to be educated and made aware of the immunological advantages of breastfeeding. Whereas in **Muhammad hasher et.al.** study reported that **98%** of the mothers know that mother milk strengthens the immunity in infants.

Out of all the respondents, 87.5% agreed that breastfeeding is superior to formula milk in terms of providing an infant's nutrient requirements, while 12.5% disagreed. This suggests that the majority of mothers understand breastfeeding effectively. Similarly, **Nurulaziyani et.al.** reported that **92%** of the mother's accepted breastmilk over formula milk.

There are 200 participants in the study. The knowledge of the breastfeeding mother was evaluated using a questionnaire consists of six questions. Each correct answer was scored as one point. Based on the total score they were categorized into three groups: those who score 5 & 6 points has good knowledge; 3 & 4 has average knowledge and 1 & 2 had poor knowledge.

In our study, 74% of the mothers had good knowledge about breastfeeding suggesting a strong overall awareness and understanding its benefits, 19% of the mothers had average knowledge and remaining 7% had poor knowledge. This highlights the need for targeted awareness programs to improve knowledge on breastfeeding.

Attitudes of breastfeeding mothers:

The study shows that 61.5% of nursing mothers felt fulfilment during breastfeeding, while 19% of mothers experienced painful, and 19.5% experienced no emotional changes. Most mothers felt emotionally connected through breastfeeding, while a smaller group experienced discomfort or emotional challenges.

In 200 participants, 74.5% of mothers did not prefer infant formula, showing a strong preference for breastfeeding, while only 25.5% considered infant formula. Since the majority did not favor formula feeding, reflects a clear initiation toward breastfeeding.

There are 200 participants in the study. The attitude of the breastfeeding mother was evaluated using a questionnaire consists of six questions. Each correct answer was scored as one point. Based on the total score they were categorized into three groups: those who scored 4 to 6 had positive attitude and between 1 to 3 had negative attitude.

Out of 200 participants, 69.5% of the participants had the positive attitude and remaining 30.5% of the participants had the negative attitude toward breastfeeding. This indicates, there is need to educate public to change the attitude towards the breastfeeding.

Practices of breastfeeding mother:

Among 200 participants, 62% of mothers breastfeed their infants more than 8 times per day, 29.5% of mothers breastfeed 8 times per day, and 8.5% mothers breastfeed 5 times per day. This suggests that the majority of mothers are engaging in optimal feeding frequency, supporting adequate infant nutrition.

The majority of mothers 67.5% initiated complementary feeding at 6 months, aligning with WHO guidelines. 22.5% of mothers initiated greater than 6 months, and 10% initiated at 4 months. Similarly, **Sola odu et.al.** reported that **72%** of the mothers started complementary feeding > 6 months.

Majority of mothers (87.5%) practiced exclusive breastfeeding for 6 months, showing good compliance with WHO guidelines. A smaller portion (6.5%) continued for 4 months, while 3.5% and 2.5% extended it to 8 months and >8 months, respectively. These patterns suggest generally positive practices with some variability in duration.

77% of mothers reported feeding their infants with only breast milk, indicating strong adherence to recommended feeding practices. 5% of mothers feeding with only formula milk, while 18% of mothers combined breast milk with cow or buffalo milk. While breastfeeding is the preferred choice among most, mixed feeding still occurs, highlighting these needs continuous awareness on exclusive breastfeeding benefits.

In 200 participants, 76% of mothers rejected pre-lacteal feeds with the p-value 0.034 of before initiation of breastfeeding, indicating a positive shift towards breastfeeding. However, 21.5% of mothers still provided honey and 2.5% of mothers used sugar water, which may pose potential health risks for newborns. In contrast to our study, **Rakesh Kumar et.al.** reported that **16.35%** baby received pre-lacteal feeds.

There are 200 participants in the study. The practice of the breastfeeding mother was evaluated using a questionnaire consists of six questions. Each correct answer was scored as one point. Based on the total score they were categorized into three groups: those who score 5 & 6 points has good knowledge; 3 & 4 has average knowledge and 1 & 2 had poor knowledge.

71% of the mothers had good breastfeeding practices, 21.5 % had average breastfeeding practices, and only 7.5% of the mothers had poor breastfeeding practices.

CONCLUSION

Breastfeeding is important for infant development; growth and it offers health benefits for both mother and infants. This study highlights the importance of evaluating of the Knowledge, Attitude, and Practices (KAP) of breastfeeding among nursing mothers reveals that overall awareness about breastfeeding is present although there is still need education in terms of exclusive breastfeeding, exclusive breastfeeding practices and continuation of post complementary feeding. Early education, encouragement from healthcare providers and continuous support system play a significant role in improving breastfeeding practices.

This study shows adequate knowledge about EBF, initiation of breastfeeding, use of pre-lacteals and initiation of complementary feeding. Based on these findings it can be concluded that there is a need for more knowledge to further improve the breastfeeding practices among mothers who are not doing good practices. Hence, it is necessary to provide correct information to the target population on current guidelines of infant feeding practices.

We conclude that healthcare providers and government should conduct programs on improving breastfeeding practices. Promoting breastfeeding through awareness programs and work place support can improve mother and infant health outcomes. Additionally, further research across diverse population is recommended to develop strategies that align with public health goals for reducing infant morbidity and enhancing quality of life.

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QUESTIONNAIRE**PROFORMA****EVALUATION OF KNOWLEDGE, ATTITUDE, AND PRACTICE OF
BREASTFEEDING IN NURSING MOTHERS AT A TERTIARY CARE
TEACHING HOSPITAL****DEMOGRAPHIC DETAILS:**

- MOTHER AGE
18-25 YEARS 25-30 YEARS
30-35 YEARS 35-40 YEARS
- OCCUPATION
HOUSE WIFE WORKING
- TYPE OF DELIVERY
NORMAL VAGINAL DELIVERY
CAESAREAN SECTION
- HAVE YOU RECEIVED COUNSELLING REGARDING BREASTFEEDING
YES NO
- INFANT GENDER
MALE FEMALE
- DIET
A. FOOD - VEG NON-VEG MIXED
B. JUNK FOOD - WEEKLY ONCE TWICE >THRICE

KNOWLEDGE:

- WHAT IS THE OPTIMUM TIME FOR INITIATION OF BREASTFEEDING AFTER DELIVERY
½ HOUR 1 HOUR
1-2 HOURS > 2 HOURS
- DID YOU KNOW THAT INFANT SHOULD RECEIVE EXCLUSIVE BREASTFEEDING DURING THE FIRST 6 MONTHS
YES NO
- DO YOU THINK COLOSTRUM SHOULD BE GIVEN TO INFANT
ACCEPTABLE TO INFANT UNACCEPTABLE
HARMFUL NONE
- DID YOU KNOW THAT BREASTFEEDING BOOST THE BABY'S IMMUNITY
YES NO DON'T KNOW
- AT WHICH MONTH WEANING SHOULD BE STARTED
3 MONTHS 4 MONTHS
6 MONTHS >6 MONTHS
- DO YOU KNOW BREAST MILK IS SUPERIOR TO FORMULA MILK IN FULFILLING INFANT'S NECESSARY DIETARY REQUIREMENT
YES NO

ATTITUDE:

- DID YOU EXPERIENCE ANY EMOTIONAL CHANGES WHILE BREASTFEEDING
FULFILMENT PAINFUL
IRRITATION NO EMOTION
- DID YOU FEEL ANY DIFFICULTY WHILE BREASTFEEDING
YES NO
- DO YOU FEEL EMBARRASSING DURING BREAST FEEDING IN PUBLIC?
YES NO
- DID YOU EXPERIENCE ANY OF THE FOLLOWING ISSUES DURING YOUR LACTATION?
DEPRESSION ANXIETY
MOOD SWINGS NONE
- WHAT IS YOUR OPINION ON PUMPING BREAST MILK?
GOOD BAD NO DIFFERENCE
- WHAT IS YOUR OPINION ON INFANT FORMULA
PREFERABLE NOT PREFERABLE

PRACTICE:

- FREQUENCY OF BREAST FEEDING IN A DAY
3 TIMES 5 TIMES
8 TIMES > 8 TIMES
- AT WHICH MONTH COMPLIMENTARY FEEDING STARTED
2 MONTHS 4 MONTHS
6 MONTHS >6 MONTHS
- DURATION OF EXCLUSIVE BREAST FEEDING
4 MONTHS 6 MONTHS
8 MONTHS >8 MONTHS
- WHICH OF THE FOLLOWING PRE-LACTAL WAS GIVEN TO BABY BEFORE BREASTFEEDING?
HONEY GHEE
SUGAR WATER NONE
- WHAT TYPE OF FEEDING ARE YOU USING FOR YOUR BABY < 6 MONTHS
BREAST MILK FORMULA MILK
COW / BUFFALO MILK BREAST MILK +
BUFFALO / COW MILK
- DO YOU AGREE TO CONTINUE BREASTFEEDING AFTER INITIATION OF COMPLEMENTARY FEEDING?
AGREE DISAGREE
- DAILY WATER CONSUMPTION OF A LACTATING MOTHER
1.5-2 LITRES 2-3 LITRES
3-4 LITRES 5 LITRES

LEAFLET

తల్లి పాలు - బిడ్డకు మొదటి బహుమతి - తల్లి పాలను ప్రోత్సహిద్దాం!

- ✦ తల్లిపాలే చిన్న పిల్లలకు మొదటి వ్యాధి నిరోధక టీకా.
- ✦ మామూలు ప్రసవం అయిన 1/2గంట, కేసరియన్ అయిన 1 గంట లోపు తల్లి బిడ్డకు పాలు పట్టాలి.
- ✦ మొదటి ఆరు నెలలు శిశువుకు తల్లి పాలు మాత్రమే ఇవ్వాలి . దీనివలన బిడ్డకు జీర్ణకౌశ సంబంధిత సమస్యలు ఉండవు. జీర్ణకౌశ వ్యాధినిరోధక శక్తిని పెంచుతుంది . బిడ్డకు మలబద్ధక సమస్య ఉండదు. తల్లిపాల వలన అస్తమా, చెవి సంబంధించిన వ్యాధులు రాకుండా కాపాడుతుంది.
- ✦ తల్లిపాలు ప్రసవించిన మరుక్షణమే ఇవ్వడం మూలాన అధిక రక్తస్రావము ఉండదు.
- ✦ తల్లికి లేదా బిడ్డకు ఒక వేల వంట్లో బాగా లేకపోయినా బిడ్డకు పాలు ఇవ్వడం మానరాదు.
- ✦ మొదటి 6 నెలలు ఎటువంటి ఇతర ఆహారం లేకుండా తల్లి పాలు. 6 నెలల తరువాత సహాయక ఆహారం తో పాలు తల్లి పాలు కొనసాగించాలి. కనీసం 2 సంవత్సరాల వరకూ పాలివ్వడం మంచిది
- ✦ పాలు తక్కువగా ఉంటే బిడ్డకు సరిపోదు అని అపోహలు వదిలి ఎక్కువగా పాలిచ్చే కొద్ది పాలు పెరుగుతాయి.
- ✦ తల్లి తినే ఆహారం బిడ్డకు హాని చేస్తుంది అనే అపోహలు మాని మంచి ఆరోగ్య కరమైన ఆహారం తీసుకోవడం మంచిది.
- ✦ తల్లిపాలలో బిడ్డకు మేలు చేసే ఐరన్ ఎక్కువగా ఉండటానికి బీన్స్ , వేరుశనగ పళ్లీలు , అలచందలు , డ్రైఫ్రూట్స్ ఎక్కువ తీసుకోవాలి . ఐరన్ ఎక్కువగా ఉండే ఆహారాన్ని విటమిన్ - సితో ఇచ్చే పండ్లతో కలిపి తీసుకోవడం మంచిది.
- ✦ తల్లిపాలతో ప్రోటీన్లు పుష్కలంగా ఉండటానికి గుడ్డు , పాలు , పాల పదార్థాలు , బఠాణీలు , నట్స్ వంటివి తీసుకోవాలి.
- ✦ కార్నియమ్ బాగా సమకూరాలంటే బాగా ముదురు ఆకు పచ్చగా ఆకుకూరలు , సోయామిల్ , పెరుగు వాటి ఆహారపదార్థాలు పుష్కలంగా తీసుకోవాలి.

తల్లి పాలే బిడ్డకు జీవన రక్ష!