FACTORS AFFECTING EXCLUSIVE BREASTFEEDING,

AFTER COUNSELLING AT

R. L. JALAPPA HOSPITAL & RESEARCH CENTRE

By

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DOCTOR OF MEDICINE IN PEDIATRICS

Under the guidance of

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ABSTRACT

OBJECTIVES OF THE STUDY

- To identify the reasons mothers give for stopping exclusive breastfeeding.
- To know the common breastfeeding problems.
- Intervention factors effecting breastfeeding.

SOURCE OF DATA

- Study Group: Mothers delivered in RLJH & RC attached to SDUMC.
- These mothers and relatives were counseled immediately after delivery about the merits of breastfeeding.
- Study period is from January 2011 to December 2011 or 500 mothers (whichever is earlier).

CONCLUSION

- Our study recorded an increasing trend towards initiation of breastfeeding.
- Mothers parents and in-laws were found to be influential in the decision making process of child rearing practices.
- Postnatal counselling brought down top feeding for the first 3 days.
- Timely intervention in the form of postnatal counselling to both family and the mother was found to be effective.
- Primigravida status was noted to significantly affect breastfeeding.

- Psychological factors, social beliefs, caesarean section and breast and nipple problems are significant reasons that mothers give for not breastfeeding exclusively.
- Cultural and traditional practices have considerable implications on lactation and breastfeeding, and in the overall well-being and health of mothers and infants.
- Breastfeeding programs should take into account traditional beliefs and concepts when communicating with families about practices such as food restriction and food avoidance.

A further study is merited to understand how these individual factors might lead to low initiation and early cessation of breastfeeding.

Findings from the survey serve as a cornerstone to understand the evolution of breastfeeding practice in rural areas of India.

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HISTORY

The art of breastfeeding hasn't changed since the first cave babies were suckled under fur skins. What is more, the importance given to breast milk in our history is undisputable. Through breast milk, the human race has remained a viable species on this planet. Without breast milk it is highly unlikely that we could have evaded extinction. Infants have survived gales, earthquakes, wars, famines, landslides, personal disasters and concentration camps due to nothing but human milk.

Though the nuances and finer points of breastfeeding were not much thought of or discussed openly, breastfeeding as an art or otherwise, is in practice since time immemorial. But, for over centuries this practice has been hampered and tampered with. The pattern of changes in breastfeeding over the years is interesting.[1]

The changes in infant feeding practices between 1850 and 1950 were more dramatic than during any earlier period. Most of the developments since 1950 seem trivial.

Feeding practices in 1850[1]

Though exact percentage is not available, infants were breastfed in various countries. The practice for women who could not nurse their own infants (or preferred not to do so) was to employ another lactating woman (a wet nurse). A few babies were 'hand reared' (dry nursed - powdered milk or animal milk given in a bottle).

Wet nursing began to decline by the middle of the nineteenth century. In most instances wet nurses proved to be unsatisfactory. A woman who wet nursed her own infant as well as another infant often failed to provide an adequate quantity of milk to either. Even when the woman's own infant had died or had been abandoned, the care given to the temporary foster infant was often poor.

Social pressure developed to eliminate wet nursing because it was believed, with justification, that a number of women abandoned their own infants in order to obtain employment as wet nurses.

Black slaves in the southern colonies were sometimes wet nurses for children of the plantation owners.

Breastfeeding was frequently supplemented by thin gruels called pap or panada. Pap consisted of bread or flour cooked in water with or without milk. Panada was similar but was usually cooked in broth of meat or legumes and included a combination of cereal, butter, flour or bread. Milk, egg yolk, whole egg, beer, wine, or anises were sometimes included. These foods were generally fed from a boat-shaped vessel (pap boat), or from a pap spoon with hollow handle, permitting the speed of delivery to be controlled by pressure of the finger on a hole at the end of the handle. Pap was more liquid than the purees that are commonly fed to infants at present.

It was commonly recommended that weaning from the breast should begin at 10 to 12 months of age, at least in vigorous, healthy infants. Weaning was not recommended during the months of July, August and September, when diarrhoea was prevalent.[1]

BOTTLE FEEDING

As the popularity of wet nursing declined during the first half of the nineteenth century, bottle feeding increased. Use of donkey and goat milk decreased in favour of cow's milk. The mortality among bottle-fed infants was high. In New York City foundling asylums in 1886 nearly all bottle-fed infants' died.[2]

A number of circumstances made successful bottlefeeding unlikely. Sewage disposal was poor and water supplies were unsafe. Sanitary standards of dairying and of handling and storage of milk were unsatisfactory. Cow sheds were located inside cities, sometimes underground, and cows were often ill. Milk was often adulterated by the addition of water and other substances. Feeding bottles made of glass had largely replaced the animal horns and other receptacles that were used in the eighteenth century. Nipples were made of cloth or leather, often stuffed with a piece of sponge. Thus, adequate cleaning of feeding utensils was impossible. Means for safe storage of formula in the home were not devised.

Knowledge of microbiology, food chemistry, and requirement for micronutrients was rudimentary. The relationship between intestinal bacteria and diarrhoea was not recognized. The need to reduce the curd tension of cow's milk was not appreciated. There were strong prejudices against heat treatment of milk for fear that it may cause vitamin C deficiency disease called 'Scurvy'.[2]

1850-1950: BREASTFEEDING

During the latter part of the nineteenth century, as the popularity of formula feeding increased, breastfeeding declined, although practice of wet nursing had not disappeared. After 1880 advertisements for wet nurses were no longer found in the London Times.

By the end of the nineteenth century in America, breast-fed infants were frequently offered formula feedings.

Knowledge of Milk Composition[3]

In 1869, it was noted that protein content of cow's milk was about twice as high as that of human milk. Mixtures of cow's milk, water, and lactose were used for infant feeding. By the end of the nineteenth century, information was available on the chemical composition of human milk and of various other animal milks.

General Sanitation

The widespread adulteration and contamination of milk supply prevalent in the middle of the nineteenth century persisted till the end of the century. Milk was usually drawn from animals in stables which would not bear any description of cleanliness, from cows which often had flaking excrement all over their flanks, by milkmen who were anything but clean. It would be drawn into milk pails which were seldom or never thoroughly cleansed, sent to the city, where it was still further delayed and finally delivered to the consumer in a partially decomposed condition.

In 1880, chlorination of water was introduced in the United States and also major improvements were made in disposal of garbage.

In 1901, milk delivered to customers of New York City, in summer, was generally contaminated with bacteria. It was only in 1912 that clean milk was available in New York City.

Processing of Milk

In 1856, patent was granted for condensing milk with heat. It was realized that addition of sugar prevented bacterial growth and improved preservation, but such milk was found to be unsatisfactory for feeding infants due to high energy density. Until the development of suitable methods of canning, use of 'un-sweetened' evaporated milk in feeding infants was not feasible because there was no satisfactory method for preventing contamination of the product after production.

Pasteurization of milk was first practised on a commercial scale in Denmark in 1890 and subsequently was introduced in other countries - apparently more to improve the 'life' of the milk than to reduce the number of pathogens.

During the latter part of 1800, it was recognized that feeding of fresh, unprocessed cow's milk resulted in formation of a tough and rubbery curd in the infant's stomach whereas feeding of fresh human milk resulted in soft flocculent curd.

Rubber Nipples, Canning, and Ice Boxes

The rubber nipple was introduced in 1845 and was followed by a number of modifications. By 1870 rubber nipples that could be fitted over the necks of the feeding bottles were available. For the first time satisfactory cleaning of the feeding utensils was possible.

In the early decades of 1900, the sanitary open-top can was introduced into industry and it became feasible to market evaporated milk in cans. By 1910, safe storage of milk at home had become possible because of the widespread availability of the kitchen ice box.[2]

Formula Feeding, 1875-1920

The last quarter of the nineteenth century was notable for the increase in the knowledge of chemical composition of foods and improvements in formula composition.

Formula Feeding, 1920-1950

Mortality of bottle-fed infants during the early part of the twentieth century was greater than that of breast-fed infants. Once the fear of using heat-treated milk had been removed, formulae prepared with evaporated milk rapidly gained prominence. The practical advantage of evaporated milk was, it was free from germs and could be stored for long periods.

For the next twenty-five years a majority of bottle-fed infants in the United States received formulae prepared from evaporated milk.

Infant Feeding By About 1950

By 1950 many of the infant feeding practices of 1850s had been abandoned. Majority of infants were no longer breast-fed.

The wet nurse had disappeared. Improved general sanitation, safe supplies of water and milk, better understanding of germs and nutrition led the doctors to believe that formula feeding was the approximate equal of breastfeeding. Almost a quarter of a century passed before there was resurgence of enthusiasm towards breastfeeding.[1]

BREASTFEEDING IN FINE ART[3]

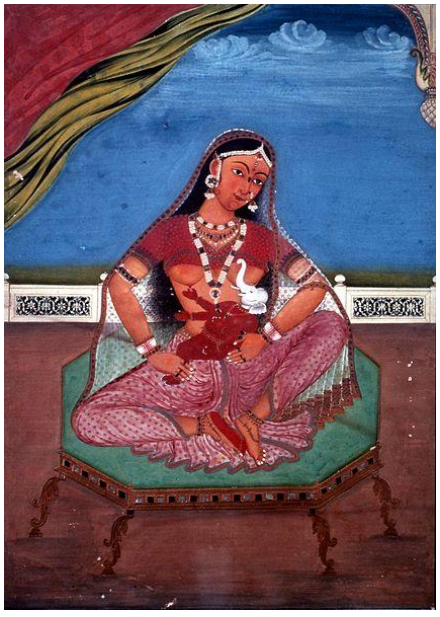
In ancient Egypt, breastfeeding was depicted in papyrus writings and in sculptural art. The best known subject was goddess Isis breastfeeding the child (Fig. 1).

The Mocheartisans of Peru (1–800 A.D.) represented women breastfeeding their children in ceramic vessels.[1] (Fig.2)

During the first millennium AD, breastfeeding seldom appeared in art. The Catholic Church was against it, insisting that Child Jesus did not need milk at all. When this dogma was overturned, there was an increase in the portrayal of breastfeeding in fine art in the form of a nursing Virgin Mary with the Child Jesus. The milk of Virgin Mary

itself became a relic, a sample of which is saved even today in many Catholic Churches (Fig.3).

According to some Brahminical literature, breastfeeding was practised in 2nd century India only after the fifth day, allowing the colostrum to be discarded and the true breast milk to flow (Fig.4).



Both Romanesque and Gothic styles of medieval art depicted mainly religious motifs, and were usually stiff and serious. The human body proportions were exaggerated and rich religious symbolism was included. Breastfeeding Madonnas in icons are called *Galactotrophousa.* All three great Italian Renaissance masters, Leonardo da Vinci, Michelangelo, and Raphael used this motif. The greatest German Renaissance master was Albrecht Durer.

Although Madonna remained the most common breastfeeding motif during Renaissance, lactation also began to appear in other connections. Francois Clouet produced the painting of the beautiful young lady Diane de Poitiers, the mistress of King Henry II. However, she was not willing to nurse the child herself, but used a wet nurse instead.

The biologist and physician Linnaeus, the English doctor Cadogan,[4] Rousseau, and the midwife Anel le Rebours described in their writings the advantages and necessity of women breastfeeding their own children and discouraged the practice of wet nursing.

A copper alloy statue from Tamilnadu in India depicts Yashodha breastfeeding Krishna, Chola period, early 12th century (Fig. 5).

WHAT FACTORS CHANGED BREASTFEEDING PATTERNS?

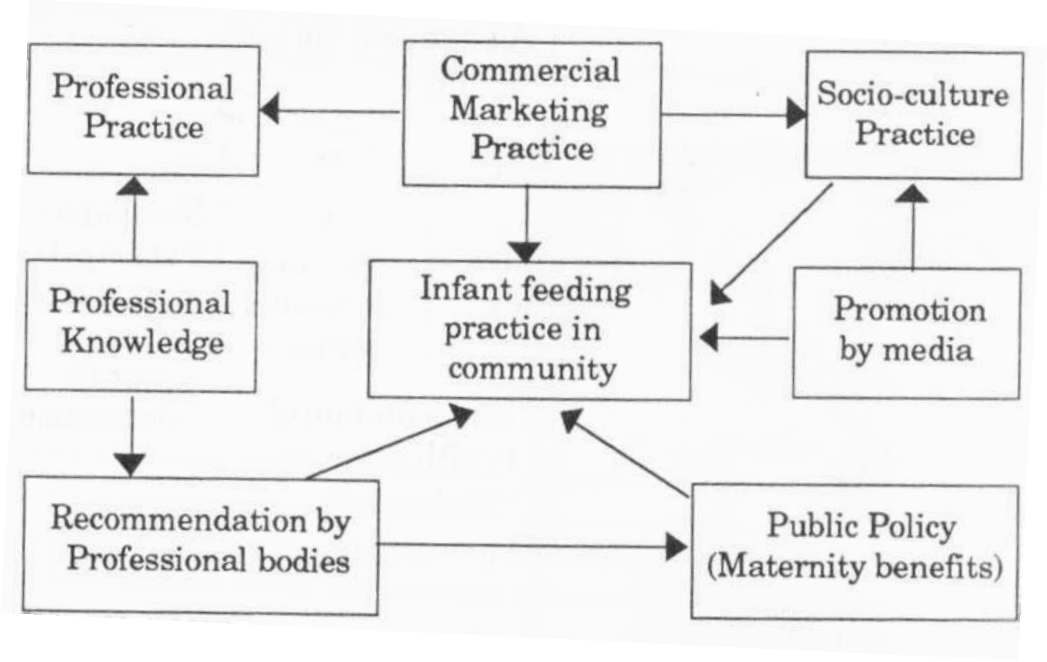
Malnutrition in children is a major concern. 47% children below 3 years are underweight. 33% of babies are born with low birth weight. Exclusive breastfeeding rate is only 19.4% at 6 months and 54.2% at 3 months, and 33% children are being provided timely complementary feeding.[3]

FOLLOWING FAULTY FEEDING PRACTICES CONTRIBUTE TO MALNUTRITION

- Late initiation of breastfeeding
- Giving babies other milk and liquids before breastfeeding is initiated
- Starting artificial feeding before 6 months
- Early start of complementary feeding before 6 months
- Late introduction of complementary food.

It has been recognized that there is a need for promotion of exclusive breastfeeding in the first 6 months of life, and sustained breastfeeding together with adequate complementary foods up to 2 years of age and beyond, to reduce illness and death in children.

ECOLOGY OF INFANT FEEDING PRACTICES[3]



For the past several decades, fewer newborns are being breastfed. More mothers, instead of suckling their infants, arc feeding them with formula powder produced artificially. **Breastfeeding today is an endangered practice** and not all mothers are interested in keeping alive the time-tested method of lactation.[4]

There is a universal increase in feeding babies with infant formula instead of breast milk. So, the practice of breastfeeding, especially exclusive breastfeeding, has declined. Too many hospitals hinder breastfeeding through practices which include separation of the newborn from the mother immediately after birth.

Every year one million infants die and millions of others are impaired because they are not adequately breastfed. This dangerous trend is gaining momentum despite scientific evidence that breast milk is vastly superior to anything available. Science is

only rediscovering what our ancestors already knew - that breastfeeding is a natural way to nurture.

Of the world's 4,327 species of mammals, humans are the only one threatening nature's proven method of caring for its babies. It is time that common sense prevailed and the simple practice of breastfeeding revived.[5]

ECONOMIC AND ENVIRONMENTAL EFFECTS OF BREASTFEEDING

Breastfeeding is a natural resource that is frequently overlooked. In some countries investing in its promotion has proven to be the most cost-effective intervention for child survival equal lo conventional practices, such as immunization. Breastfeeding is priceless. Advocacy of exclusive breastfeeding requires an appreciation of its full importance by all sections of society. Economic considerations cannot put a value on any expression of love or altruism.

Breast milk is one of the few foodstuffs which is produced and delivered to the consumer without any pollution, unnecessary packaging or waste. The idea that breast milk should be replaced by an artificial substitute has been compared to suggesting that dialysis machines should replace human kidneys. But to use dialysis machines and artificial baby milk in place of the natural originals provided by the human body is a waste of resources. Bottle feeding causes the death of one and a half million babies every year and ill health in countless others.[5]

Breastfeeding has a positive effect on the environment. Breast milk is a natural renewable resource which is intended to be fed to babies. Artificial baby milks are processed, non- renewable substitutes for this resource.

There is no waste in breast milk as it is produced in quantities according to baby's needs. Suckling conditions the quantity of milk produced. As breast milk is produced in the right quantity and is tailored to the baby's needs, breastfed babies excrete less often and need fewer nappies. Breast milk production does not pollute anything. Breast milk is free, requires no extra packaging, does not have to be shipped across the world, protects against infection, and does not need the huge amount of promotional materials used to sell baby milks. Breast milk is completelyenvironmentally safe.

Not to use it is a waste of valuable resource[7,29]

An average mother lactates for a period of two years and she is estimated to produce 346 litres of breast milk during this period.

Annual births in India	24.38 million
Infant mortality rate	73/1000 live births
Production capacity of each mother	346 litres
Annual capacity	8093 million litres
Annual production (potential)	6814 million litres
Annual production (realistic)	3944 million litres
Production loss due to undesirable supplementation with other milk	2870 million litres

Breast milk production loss is estimated to be 2870 million litres because of artificial feeding and supplementation of other food with breastfeeding.[7]

Valued at the cost of fresh animal milk at Rs 15 per litre, market value of realistic production of breast milk would be Rs 5916 crores. Were it to be replaced by tinned milk at a cost of Rs 30 per litre, the value doubles to Rs 11832 crores. If it is to be imported, it would require US $ 4.7 billion. The total cost of production of breast milk comes to Rs 1578 crores (estimated extra food requirement of a lactating mother at Rs. 4 per litre of milk).

COST OF ARTIFICIAL FEEDING FOR THE FAMILY[8,29]

The cost of feeding a child artificially for the first six months works out to about Rs 2,100 per month (including the cost of bottle, nipple, fuel, in addition to the powdered milk). This is equivalent to 43% of minimum wages of a skilled worker, 25% salary of a class-IV employee, or 14% salary of a school teacher. This is significant enough to pinch the household budget of every family. This does not include the time to prepare and administer bottle feeds, and also time spent in caringfor the sick child because bottle-fed babies are prone to illness.

Baby food tins need tinplate, paper for labelling and advertising. Bottles, teats, require plastic, glass, rubber and silicon - all these products consume natural resources (tin, glass, paper, etc.). These cause unnecessary pollution while manufacturing and packing and result in waste disposal problem.

Oil is the key resource used to manufacture plastic. Hence, manufacturing plastic creates pollution. Plastic is virtually indestructible and remains for ever as a pollutant.

Lactating women do not menstruate at least for the first six months, and therefore require no sanitary towels or tampons. In UK each menstruating woman uses 286-358 towels or tampons a year, 98% of which are flushed down the toilet, 52% of these are released untreated into the sea. Where tampons require six months to biodegrade, sanitary towels need longer, and the plastic liners on sanitary towels are not biodegradable and remain as pollutant. If every mother in UK breastfed her baby, 3000 tons of paper alone would be saved every year on sanitary protection products.

When a mother prepares artificial baby milk, she has to sterilize the water and the utensils. The energy to boil water usually comes from polluting nuclear and conventional power stations. In India water is scarce and a woman spends five hours a day to fetch water.

In India, alone it would take 135 million lactating cows to replace the milk of women. 43% of the surface area would have to be devoted to pasture. When the cows are reared, forest land has to be cleared for their pasture, leading to deforestation, depletion and erosion of soil, and increase in gases which contribute to greenhouse effect (depletion of ozone layer).[8]

The nitrate fertilizers used to grow feeds for dairy cows are highly soluble; they reach rivers and contaminate the ground water.

The factories processing milk create concrete jungles and pollute the environment with gases and effluents.

Processing and transport

Most artificial baby milk is heat-treated cow's milk which is converted into powder. The energy required to reach the high temperature and create the mechanical procedures required in this process cause air pollution as well as require natural resources in the form of fuel. The milk often travels considerable distance before processing and the tins, paper, bottles, etc., also need to be transported. No exact data on the pollution caused by such unnecessary transport are available but they will be considerable.

Increased bottle feeding contributes to the debt crisis in underdeveloped countries, as bottles, teats and artificial milks are imported, and also extra resources are required by the health departments to treat bottle-fed babies who are prone to illness.[9]

Breastfeeding transfers valuable immunizing agents into the baby and promotes healthier babies. With increased breastfeeding, child health is improved and fertility lowered, reducing population pressure and dependency on expensive family planning programmes and services. A smaller population means less ecological destruction. Exclusive breastfeeding for the first six months (a method not requiring resources, packaging, health workers, time, etc.) prevents more births than all other forms of contraception put together. Approximately Rs. 500 crore could be saved on the promotion of family planning in India alone.[29]

Diarrhoea is fourteen times more in bottle-fed babies. The money required to treat diarrhoea would cost an additional public expenditure of Rs 176 crores. But the obvious increase in illness, malnutrition and eventual death shows the dramatic value of breast milk to the health system. Breastfeeding has a positive effect by being a renewable resource and by preventing damage to the environment in the form of increased population and wasted materials. The undermining of breastfeeding is the destruction of natural resources and should therefore be seen in the same light as logging in the rain forest or over-fishing in rivers and seas.

Man's commercial greed has no respect for ecology. Companies involved in logging, fishing need more wood, more fish to earn their profits. In order to retain their market, baby milk food companies ensure that more babies are bottle-fed.

This natural resource of the nation (breast milk) is currently severely endangered by trends such as modernization and urbanization towards bottle feeding. If companies continue to be successful in their attempts to increase sales, the problems caused by bottle feeding today will reach catastrophic proportions in the future.[9]

Let efforts be directed to protect, promote and support breastfeeding.

I know, you know, we all know that

'Breast milk is the best'.[11]

Breastfeeding is safe under any circumstances.

THE CULTURE OF BREASTFEEDING - HOW IT WAS THREATENED

In rural areas, the practice of breastfeeding is passed on through oral communication and by visual and family models observed in communities. Listening to conversations in the family has been the main source of daily information to the people in these areas. Education and habits have been acquired through life experiences, observations and community activities. Then came the age of industrialization along with the promotion and marketing of breast milk substitutes.[12]

- People moved from small places to larger urban areas.
- Uprooted from their culture and exposed to urban influences, artificial baby milks were introduced.
- The mass communication industry - electronic, print media, etc., resulted in promoting the new culture indirectly.

There was large-scale promotion and marketing of infant formula and foods by advertising in magazines, newspapers, television and internet. The distribution of free samples in hospitals and the planned promotional activities of the manufacturers of breast milk substitute and infant food, targeted to convince certain segments of the medical profession to back this controversial practice. This resulted in disinformation, confusion, and lack of confidence in breast milk among both health professionals and mothers.

To change the mind set and to reach people with accurate information, let us resolve to change this and rewrite history.

Each one of us will have to use various available means of communication such as radio, television, papers, magazines, e- mail, internet, etc. to reach all, especially the young, adolescents and the newlyweds.

'Access to accurate information on breastfeeding and complementary feeding is the right of the people'.[13]

WAR AGAINST INFANT MILK FOOD PROMOTERS[13]

The campaign against bottle-feeding and the unethical marketing practices of baby food companies is one of the oldest global consumer movements. It has been a long struggle for self-preservation and protection of human race and a war against exploitation through the evils of modern marketing. It is a fight against the relentless corporate imperialism. It is an endeavour to stop the heartless marketing of 'sell at all costs'. A good salesman should be able to sell a fridge to an 'Eskimo in Tundra'. The salesman has created the need for infant milk substitute where none existed initially.

The movement began in mid-1960s when a group of student activists from Switzerland came out to the streets in protest against the unethical marketing strategies of Nestle, the market leaders world-wide in baby foods. From then on, the movement has gained momentum.

An international code promoting breastfeeding and restraining the marketing of baby foods, bottles, nipples, etc. was passed at the third World Health Assembly (WHA) in 1981.[18]

Promotion of infant milk substitutes and related products like feeding bottles, nipples constitute a health hazard. The dissemination of information on these products has been extensive, than the information on the advantages of breastfeeding. This has caused a decline in breastfeeding, and, if not checked, can be disastrous putting young babies to risk of infection, malnutrition, and death. In view of the vulnerability of the infants to the aforesaid risks of unnatural feeding practices, including improper use of infant milk substitutes, feeding bottles, infant foods, it became necessary to regulate the marketing of such products.

The Government of India recognized the code and adopted the 'Indian National Code for Protection and Promotion of Breastfeeding' in December 1983.

Central Act 41 of 1992, what is it?[18]

Finally, The Infant Milk Substitutes (IMS), Feeding Bottles (FB), and Infant Foods (IF), (Regulation of Production, Supply, and Distribution) Act 1992 came into force in August 1993 along with the rules (Central Act 41 of 1992).

The important provisions of this Act are:

A. Promotion to Public

- No person shall advertise any kind of infant milk substitutes (IMS) or feeding bottles (FB).
- No person shall take part in the promotion of infant milk substitutes, feeding bottles or infant foods (IF).

- No person shall give free samples or gifts of IMS or FB or gifts of utensils or other articles.
- No person shall offer inducement of any other kind for the purpose of promotion of use or sale of IMS or FB.
- No donation of IMS or FB to any person except to an orphanage.

B. Labelling

- Containers of IMS, FB and infant foods or a label on it should carry certain information prescribed in the Act and rules.
- No picture of an infant or woman or both is allowed on the label or tins of infant milk substitutes.
- No use of words like ‘Humanised’ or 'maternalised' on the label, container or advertisement of IMS.
- No use of words like 'recommended or approved by medical profession'.
- No use of words like 'full protein', 'complete food' or 'energy food' on labels of IF.
- Not to use educational material on prenatal, postnatal care or infant feeding for the purpose of promoting sale of infant milk substitutes or feeding bottles.

C. Promotion of Health Care System

- No display of posters or placards on IMS, FB or IF in hospitals, etc.
- Information and education material relating to IMS and FB can only be distributed by medical practitioners and should have minimum prescribed information as perrules.
- No payments of any kind to a person working in health care system by any person producing, supplying, distributing or selling IMS, FB, and IF.
- No direct or indirect financial inducement or gifts to health workers.

D. Company Employees

- No commission to employees on the basis of sales volume by the producer, distributor, supplier or seller of IMS, FB or IF.

E. Penalty

- Violation of the Act can lead to fine and/or imprisonment **upto 3 years.**

THE ACT PROHIBITS

- Advertising to public
- Free samples to mothers
- Promotion in hospitals
- Gifts or samples to health workers
- Financial inducement to any person.
- Commission on sales to employees.
- Payment of any kind to health workers.

Stages in the adaptation of code in India[19]

1965: Swiss student activists protest against Nestle, a baby food Industry.

1974: Geneva meeting of the people and manufacturers concerned.

1979: Baby food companies, UNICEF, WHO met and agreed to restrain promotion and marketing tactics. However, within a period of 12 months the agreement was violated more than a thousand times.

1981: WHO adopted International code for protection and promotion of breastfeeding.

1983: Adoption of the Indian code.

1986: The IMS/FB/IF (regulation, production, supply anddistribution) bill was passed by Rajya Sabha on 18th November. Bill lapsed with the dissolution of 8th Lok Sabha.

1987: Mr P. V. Narasimha Rao, Minister for Human Resource Development, met Mrs Margaret Alva, Minister for Women and Child Development, and representatives of Industry, Health, Agriculture and Law. Reviewed baby food marketing and recognized the dangers of bottle feeding.

1990: Global meeting on breastfeeding. High level policy makers from Govt. and UN agencies held at Florence, Italy. Innocenti Declaration.

1990: Formation of World Alliance for Breastfeeding Action(WABA). In India, scope of bill enlarged. The infant milk food, feeding bottles and infant foods (regulation of production, supply and distribution) bill was introduced in the Lok Sabha on 10th January.

1991: Bill lapsed due to dissolution of 9thLokSabha.

1992: Tabled again in Lok Sabha on 8th May 1992.

1993: Came into force on 1st August 1993

INFANT MILK FOOD IS UNSAFE IN THE INDIAN CONTEXT

'Artificial feeding of infants is in fact, the largest uncontrolled in vivo experiment in human history.'[14]

'Infant's gut has been specifically designed by nature to cope with just one very specially formulated food, its mother's milk, during those critical early months of development. To introduce any foreign substance into the baby's diet at this time must be assumed to be hazardous.'

A survey conducted on behalf of UNICEF reveals that among infants in the age group of 0 to 18 months, there is a high penetration of infant milk food and branded cereals - as compared to breast milk.[15]

0 - 3 months babies	- Metros 24%
	- Non Metros 22%
4 - 6 months	- Metros 46%
	- Non Metros 42%
7 - 9 months	- Metros 33%
	- Non Metros 35%

Further, the survey also reveals that most mothers who use infant milk food perceive it as sophisticated, more nourishing and convenient. This is especially true with the mothers from lower and middle income groups.

It is frightening to imagine the extent of damage bottle feeding could inflict in the Indian context as majority of the Indian mothers are illiterate and will not be able to read or comprehend the detailed instructions printed on the infant milk food pack. There is a very high risk of wrong procedures being followed and the baby being malnourished.

60% of the families live below the poverty line. Nine hundred rupees on infant milk food every month is beyond the budget of these poor households. Often bottle-fed babies are given diluted formula simply because the parents cannot afford to buy the infant milk food as often as required. In order to stretch the formula for the entire month (or save on the cost of baby milk powder), the milk is over-diluted and the babies are underfed and grossly malnourished.

The acute shortage of clean drinking water, the lack of proper kitchen facilities and the short-supply of fuel makes it difficult to sterilize the bottle and nipples or boil the water and to conform to any standard of cleanliness. These factors are the main causes of diarrhoea and malnutrition leading to thousands of infant deaths.

The infant milk food industry is steadily growing in the country with large volumes of several brands and has become a highly competitive market. The marketing is aggressive and strategies are often unethical and exploiting the human vulnerabilities.[16]

They:

- Create a need where none exists
- Convince consumers that the products are indispensable for healthy life.
- Link products with most desirable and unattainable concepts.
- Give free samples taking care not to openly flaunt the International Code for protection and promotion of breastfeeding.

However, it is almost certain that some free samples are being supplied to most of the larger hospitals and nursing homes. This is usually accompanied by visits by medical representatives to promote their products/brands using visual aids, flip charts, etc. Thus, hospital and nursing homes, paramedical staff, paediatricians and obstetricians are being used as an indirect means of promoting and selling infant milk foods. Doctors, nurses and health workers are often bought by the companies by showering on them gifts, sponsoring conferences and other factors associated with them such as air travel arrangements to delegates, hotel accommodation to delegates, medals, mementoes, journals, etc. Once under their obligation, the doctors start prescribing the products of their benefactors in the infant milk substitute industry and become its most effective sales force.[16]

A UNICEF-sponsored research reveals that doctors and hospital staff were the source of awareness to 48% of mothers using infant milk food. Advertising was a major source of awareness for mothers in small towns.[17]

Companies also fund hospitals, nursing homes, etc. through donations, both in cash and kind. Free samples and subsidized formula given to nursing homes are used as prelacteal feeds in the first three crucial days in their nurseries, intensive care units, etc. They also provide baby booklets, immunization cards, etc. which overtly/covertly and subtly convey the message of the need for infant milk.[17]

The community and the mothers are exposed in a phenomenal way to the extensive propaganda and false claims through advertisement in audio, video, and print media by the industry.

Once the babies start bottle feeding, the mother is unable to breastfeed properly. The moment mothers move out of hospitals and free samples are finished, costly infant milk food has to be purchased. A costly dependence is thus created and another baby is added to the infant milk food market. Often parents cannot afford these, thus leading to over-dilution of food, malnutrition, infection, death.[17]

BABY FRIENDLY HOSPITAL INITIATIVE (BFHI)[20]

The trend of staying away from breastfeeding is a widening gap that can swallow the child's potential to survive and thrive. Every culture that abandons breastfeeding is inviting upon itself:

- Sicker children
- Weaker mothers
- Poorer families
- Strained national economies and polluted environment.

Hence UNICEF and WHO launched the BFHI (BabyFriendly Hospital Initiative) in June 1991 designed to ridhospitals of their dependence on breast milk substitutes and to encourage maternity services to support, protect, and promote breastfeeding. BFHI was started in the urban hospitals of the world where breastfeeding was most endangered and discouraged. BFHI accepts two interdependent responsibilities:

1. Information to mothers about the benefits of breastfeeding and its management.
2. To totally cut off misinformation from baby food industry.

TEN STEPS TO BABY-FRIENDLY HOSPITALS

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits of breastfeeding.
4. Help mothers initiate breastfeeding within half an hour of birth of the child.
5. Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants.
6. Give new born infants no food or drink other than breast milk.
7. Practice rooming in - allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.

A hospital following the ten steps to successful breastfeeding equips every woman who enters with knowledge and provides her with the support she needs to make an informed decision about breastfeeding.

Every hospital that meets the international standards is awarded a plaque proclaiming its dedication to protect, promote and support breastfeeding and is dubbed ‘BABY FRIENDLY’.

The fact today is that we must admit, having taken a wrong turn, we got lost for a while, but we have a road map to regain our direction.

In a time of recession, waste of national currency and family budget is unwise and unaffordable. Reallocate the money saved by eliminating bottles, dismantling nurseries in hospitals, reducing infection and diseases suffered by their youngest patient. Japan became the first developed country to have a baby-friendly hospital.[21] Friendly' hospitals (hospitals which are following the ten steps) in India.[22]

INTRODUCTION

Need for study, when:

- only 15% are breastfeeding exclusively within 24 hours
- Only 37% had initiated breastfeeding within 24 hours.
- Only 55% babies are exclusively breastfed at 4 months.
- By 6 months 50% are already receiving supplements.
- At 9 months, 54% of children are still not introduced to complementary food.
- 5% have started giving bottle feeds in the 1st month, 15% at 3 months, 15% at 6 months.

(Source: NFHS-2 and Multiple Indication Survey, 2000).

The outstanding characteristics of mammals is that they suckle or feed their young with their milk at least until they can get their own food.

In mammals, learning to breastfeed is part of a lifelong process beginning at birth. Some of the knowledge is instinctive but much of it is socially acquired by aconducive environment.

Breastfeeding is a mother's privilege, a baby's right. From the beginning of human civilization, generations after generations have grown up on mothers' milk, natures complete diet for the new born. Nothing can compare with breast milk. Breast milk is a living substance containing enzymes and antibodies specifically designed to protect the infant's very vulnerable body system.[23]

A mother's privilege, a baby's right

- A complete diet for the new-born.
- Easily available, simple to feed.
- Easily digestible, hygienic.
- Economical - zero cost.
- Protects from disease.
- Provides emotional security.

Breastfeeding is fundamental to the health and development of children and important for the health of their mother. Breastfeeding is natural, natural is good but what is natural may not be easy. Childbirth is natural but not easy. Suckling of the young is learnt rather than an instinctive behaviour in many other mammals too!

However, natural the process may be, she must still be taught what to do if her baby refuses to suckle, if her nipples hurt, or if her milk seems to be diminishing.

Nearly all women are able to breastfeed their babies.

Why then do we see more and more women feeding their babies artificially? Why do women doubt their natural ability to provide their children with the most nutritious, anti-infective food available with them? Why do mothers believe they cannot produce enough milk to satisfy their babies' hunger, when their mothers and their mother's mother knew no other way of feeding babies? Why are their doctors quick to recommend infant

formula to 'supplement' breastfeeding rather than helping mothers to breastfeed with ease and success?[23,24]

Why are mothers delaying initiation of breastfeeding by hours and even days rather than feeding their babies colostrum - baby's energy packed first vaccination?

Women are being wrongly convinced that they are unable to breastfeed the baby due to any number of reasons as below:

- Not enough breast milk.
- Poor quality of milk.
- Weakness in the mother.
- Delivery by caesarean section.
- Premature baby.
- Mothers returning to work.
- Malpractices and superstitions.

MALPRACTICES AND SUPERSTITIONS[24]

The misunderstandings that arise from thoughtlessness, like inappropriately applying bottle feeding rules to breastfeeding are called *malpractices.* Some misunderstandings which are more deep rooted and often appear to be convictions are called *superstitions.*

Most traditional superstitions have a practical origin. Some societies recommend abstinence from sexual intercourse during lactation. One explanation for this is that it is to prevent the semen mixing with milk thus making it unsuitable, and to prevent it from infection and injury. Child spacing is the real benefit of abstinence. This too protects the baby.

Modern superstitions spring from the so-called scientific practices and misplaced enthusiasm for new gadgets. The custom of routinely weighing infants in a maternity ward before and after feed is an example which is now obsolete. This worries the mother and undermines her confidence and impairs breast milk production.

Some are projections of adult wants and needs. A baby is taken away from its mother after delivery with an explanation that the child needs peace and quiet. If this were so, a woman should be advised to stay motionless throughout pregnancy so as not to disturb the foetus! Child needs body contact, movements and closeness and peace and quiet are the preference of the adults i.e., medical staff.

Superstitions are perpetuated by human conservatism. It is very painful for an old midwife who for fifty years taught mothers to give one breast at each feeding, suddenly forced to admit that she was wrong all the time. If she is not aware that her methods are causing problems, it is impossible for her to change or to accept what would be right.

Malpractices and superstitions vary between cultures and individuals. But one should be able to distinguish betweenbeneficial beliefs or harmless beliefs or practices, which could be left undisturbed or recommended for their psychological benefits.

All practices have reasons behind them and each promotes certain value. This value must be recognized.

THE MYTH	THE FACT
Bottle feeding is easier than breastfeeding	Bottle feeding is unnatural. Remember bottles, nipples have to be sterilized before each feed and are available for a price.
You never know how much a breastfed baby gets, but you know how much you have given a bottle fed baby.	If the breastfed baby is gaining weight and passing urine more than 6 times, be sure, the baby is getting enough milk. Many bottle fed babies are overfed or underfed with formula either too strong or weak with wrong quantity of sugar.
Breastfeeding makes you more tired than bottle feeding	Although breastfed babies need to be fed more frequently than bottle fed babies, bottle feeding requires time to prepare the formula, to clean bottles and teats after every feed.
If you breastfeed you will get sore nipples	They are due to bad techniques and remediable by correcting the techniques of feeding.
Breastfeeding spoils your figure.	The extra fat laid down as lactation calories during pregnancy is burnt up if you breastfeed your child. If you choose to bottle feed the fat may remain.

WHY BREASTFEEDING IS IMPORTANT[25]

Breastfeeding is much more than a means of providing calories to a newborn. It is the focal point of infant's health. It is a natural extension to the process of pregnancy and child birth. It is truly a beautiful interactive process where both the mother and the child

work together to produce a living biological substance that nourishes the infant, protects both mother and child from a plethora of diseases, and establishes a warm and loving relationship between them. Nursing is not just about the action of feeding a child with one's breasts, it is about nurturing, for mother and child.

ADVANTAGES OF BREASTFEEDING

- Saves the lives of over one million infants each year.
- Saves many infants in every country from suffering preventable diseases.
- Saves our earths' resources including trees and other sources of energy.
- Decreases the number of women who develop breast and ovarian cancer.
- Decreases the pollution of air, water and land caused by the production and preparation of artificial baby milk and used milk containers.
- Decreases government spending on artificial baby milk for subsidized infant feeding programmes.
- Decreases medical cost by preventing illness and allergies caused by the use of artificial baby milk.
- Removes the economic burden on families due to the high cost of artificial feeding.
- Avoids devaluing of women's ability to breastfeed and affirm their important contribution to society when they breastfeed. Breastfeeding empowers women.
- Provides food security for babies and an important source of nutrition to children for at least the first two years of life.
- Provides a natural way of spacing pregnancy - which protects women's health.

- Provides positive role models enabling women to learn breastfeeding skills that will be passed on for generations.
- Foster optimal emotional, intellectual, and cognitive development of children.

The answer to breastfeeding problems is seldom to switch to a bottle of formula but, rather, to seek out help from someone knowledgeable. Even mothers who believe that 'breast is best' are subjected to ingrained practices and the expectations of society. Breastfeeding requires determination, confidence and support. The requirement of determination is the new piece of equation.

Breastfeeding is not only a woman's right and an infant's best start but also can be a delightful experience for both mother and baby that it is as beneficial physically as it is emotionally.

Breastfed babies

- Get sick less often and get illnesses that are less severe.
- Are hospitalized less often and have a lower rate of mortality.
- Have a lower risk of diarrhoeal diseases.
- Have a lower incidence of gastro-intestinal illness.
- Have a lower incidence of urinary tract infections.
- Have a lower incidence of ear infections.
- Have a lower incidence of allergies.
- Have a lower rate of obesity.
- Have a lower incidence of lung infection.

- Have fewer learning and behaviour difficulties
- Have better psychological development.
- Develop more energy-efficient and rhythmically functioning nervous system.
- Are less likely to develop heart disease and cancer later in life.

Breastfeeding

- Helps bond mother and child together
- Confers passive immunities.
- Is protective against measles and other communicable diseases.
- Provides optimal growth and neurological development.
- Prevents malocclusion and leads to better teeth and jaw development.
- Protects against cold weather.
- Reduces the incidence of childhood cancer.
- Enhances visual development.
- Is less risky for premature babies and babies with low birth weight.

Artificially fed babies

- Have 14 times higher risk of diarrhoea.
- Have 4.5 times higher risk of pneumonia
- Are 2.5 times more likely to die of other infections.
- Have an increased risk factor for juvenile diabetes.
- May have impaired antibody response to vaccines.
- Have a higher risk of obesity.

- Have a higher risk of inflammatory illness.
- Havea higher risk of celiac disease, Cohn's disease, ulcerative colitis, cholera and hypocalcemictetany.

Role of Obstetricians[24]

The pregnant woman who visits her obstetrician all through her pregnancy and childbirth has great faith in her. They have a great role in not only encouraging the woman all through her pregnancy to breastfeed, but also in providing necessary support and guidance in initiating, establishing, and sustaining breastfeeding.

During antenatal check-up, she needs to help the mother if she has any specific problems relating to breastfeeding like the size of the breasts, nipples, etc. In addition, she has to provide the mother with strong emotional support after delivery when they are going through a lot of mood swings due to hormonal changes. It is at this point that the obstetrician has a crucial role to play.

Since many obstetricians are too busy to spend time with the mother to help her with breastfeeding, the next best person is the maternity ward nurses. They need to be trained and motivated to help and assist the mother.[27]

Mother should be informed during pregnancy of:

- The advantages of breastfeeding.
- The importance of rooming in.
- The importance of unrestricted feeding.

- Correct technique of breastfeeding.
- Importance of colostrum.
- Nutrition for the mother - one extra meal, tablets of iron and calcium for 100 days.

So that she can act immediately after delivery. She should also identify support from close family members so that they too can be guided.

THE NEED FOR SUPPORT GROUPS[24,26]

Many mothers give up breastfeeding and start complementary feeds in the early weeks as difficulties arise during this time. Many mothers are discharged within a day or two after delivery, before their breast milk has come in, and before breastfeeding is established.

The common difficulties a mother faces when she goes home are:

- Difficulties with breastfeeding.
- She has to cope with the demands of the rest of the family and, of course, household chores.
- She may have to listen to lot of different advices about how to feed the baby.
- She may be isolated without help.
- She may have to go back to work.

Where can a mother seek continuing help and support so that breastfeeding is established?

- **Supporting family and friends** are the most important source of support. Community support is often good where breastfeeding traditions are strong and family members live near. However, some traditional ideas may be mistaken or they may have friends and relatives who encourage them to bottle feed.
- An early check up at the hospital within one week of discharge, so that breastfeeding can be observed and problems solved before they become serious.
- A routine check-up at six weeks, which helps to observe breastfeed and also discuss family planning.
- Mother should receive continuing help from health care services as and when required.
- Community health workers are in a good position to help as they see these mothers more often and have more time.
- **Breastfeeding support group** this group can be started by health workers, by an existing women's group, by a group of mothers who feel that breastfeeding is important or by mothers who meet in the antenatal clinic or maternity facility and who want to continue to meet and help each other. These mothers share experiences, and help each other with encouragement and with practical ideas about how to overcome difficulties. The group needs someone who is accurately informed about

breastfeeding to train them. The group needs a source of information that they can refer to if they need help. Also, they need to be provided with up-to- date education materials to educate themselves.

- Mothers can also help each other, not only at meetings but also when they are worried or depressed, or when they don't know what to do.

There is a need for the support group as we have lost our traditional support.

In the rural sector, deep rooted wrong traditions have to be overcome by strengthening the information, education, and communication channels.

In the present day nuclear families the wife is required to discuss about breastfeeding with her husband right from the time of pregnancy, so that she can ensure successful breastfeeding. Husbands can help their wives by suppressing negative influences hindering breastfeeding.

THE FIRST FEED AT THE BREAST

Initiate breastfeeding as early as possible within about an hour of birth - 'Golden hour'.

During the birth of the baby a lot of adrenaline (stress hormones) is secreted both by the mother and the baby. This helps both of them to be alert and active. The mother is keen to know the sex, colour, weight and health of the baby. An hour or two later she goes off to sleep following the labour pains and fall in catecholamine. So also, the baby is

alert and active in the first one hour and has a strong sucking reflex - **critical hour-critical reflex.**[28]

Skin-to-skin contact helps in better mother-child bonding and development of the baby. The area of skin contact is directly proportional to the area of brain tissue stimulated. This facilitates optimal growth of the brain. This also explains the better performance of breastfed babies on intelligence scales in the later part of their life.

The useful organisms present on the mother's skin enter the baby's skin and protect the child from the surrounding harmful bacteria.

It stimulates the oxytocin and prolactin reflex and hence breast milk production. Women who have initiated breastfeeding in the first hour of child birth have been more successful in establishing and continuing breastfeeding.

It reduces the chance of postpartum bleeding, because oxytocin contracts the uterus. These simple acts prevent anaemia in the mother, and also the need for tying binders to shape the abdomen.

It ensures that the baby gets its first immunization, i.e. the colostrum (first milk) with its multiple beneficial properties.

FREQUENCY AND DURATION OF FEEDS

Human infants are fussy, demanding, and seem to have a small stomach capacity. They want to feed once every one or two hours throughout the day and night.

The only constant feature is that none seem to be very hungry for the first few days, feeding only two, three or four times a day, but from the third day onwards this changes. If a baby is given the opportunity to feed unrestricted, it may want to feed as many as ten to twenty times a day. This is nothing unusual. It only shows that the infant is waking up into the world. He needs to be reassured that closeness and cuddling are still available, even though it has left the warm, dynamic environment of the womb. From the second week of life, most babies begin to demand less and gradually settle into a routine of their own.[27, 28]

The baby's stomach is small and needs to be refilled often. Breast milk is perfectly suited to the baby's small stomach because it can be easily digested.

Frequent feeding helps maintain the mother's milk supply, maximize the contraceptive effect, and provide immune factors to the child at each feeding. They also help to prevent problems such as breast engorgement that might discourage a woman from breastfeeding.

If the baby urinates six times a day, this is a sign that breast milk is adequate. If not, more breastfeeding is necessary or breastfeeding technique should be assessed.

Breastfeeding at night is helpful as the milk-producing hormone prolactin is secreted more during night and it has relaxing effect on mother.

'Unrestricted' means whenever the baby is hungry, it is shown by the baby's increased alertness. Some babies may like to feed less or more. Those reluctant should be encouraged to feed more frequently.

MORE FEEDING = MORE SIGNALS = MORE MILK (Provided the suckling is efficient).

The easiest and most natural way of feeding your baby at night is to have him in bed with mother all night. Night feeds may disturb the mother's sleep but they are essential. Once lactation is established supply adjusts quite quickly and the discomfort ceases.

Breastfeeding at night gives the baby extra time for suckling. More prolactin is secreted at night than during the day. This:

- Helps to keep up the milk supply.
- Helps if the mother is away for part of the day, for example at work. The baby gets much of the milk that he needs at night and needs less milk during the day
- Is important to prevent or postpone pregnancy.
- Prevents engorgement in the morning, and baby having difficulty to latch.

TYPES OF BREAST MILK[28]

Breast milk at different stages is defined by differentterms.

Pre-Colostrum: Thick lemon yellow liquid secreted in the second half of pregnancy.

Colostrum: Thick bright yellow liquid secreted during the first 3 to 6 days after the delivery of the baby. It contains more protein than mature milk.

Transition milk: During the second week that follows the colostrum stage, the milk increases in quantity and changes in appearance and composition. The immunoglobulin and protein content decreases while the fat and sugar content increases. The breasts feel full, hard and heavy. Some people call this phase as the breast milk 'coming in'.

Preterm Milk: Milk produced by a woman who has delivered prematurely is called preterm milk. This milk has more protein, minerals, immunoglobulins and lactoferrin than mature milk, making it more suited for the needs of premature baby Preterm milk is essential and best suited for the survival and growth of a premature baby.

Mature milk: Mature milk increases in quantity and contains all the nutrients needed for healthy physical and mental development of the baby, though it appears more watery than cow's milk. Mature milk changes even during the length of a single feed to exactly suit the needs of a particular baby.

Fore milk: The milk that comes at the start of a feed is called fore milk. This milk is watery and pearl blue in colour, has low level of fat and is high in lactose, protein, vitamins, and minerals. It satisfies the baby's thirst and is produced in large quantity than hind milk.

Hind milk: Hind milk which comes later in the feed is four times rich in fat which makes it appear whiter than foremilk. It satisfies the baby's hunger and supplies much of the energy of a breastfeed. Therefore it is important not to take the baby off the breast too quickly. Babies who are fed with fore milk and hind milk sleep well and grow healthy. However, there is no sudden change from fore milk to hind milk. The fat contents increase gradually from the beginning to the end of a feed. By choosing to stay on one breast for long and drinking the calorie-dense hind milk the infants' hunger needs are satisfied. By switching to the other breast and drinking the low fat fore milk, the infants' thirst needs are satisfied. Breastfeeding works as a pacifier and an appetizer.

OBJECTIVES OF THE STUDY

- To identify the reasons mothers give for stopping exclusive breastfeeding.
- To determine the common breastfeeding problems.
- Intervention factors effecting breastfeeding.

REVIEW OF LITERATURE

Adequate nutrition during infancy is essential to ensure the growth, health, and development of children to their full potential.[29] Breastfeeding confers short-term and long-term benefits on both child and mother including helping to protect children against a variety of acute and chronic disorders.[30]

Preparation of mothers before they give birth is fundamental to the success of exclusive breastfeeding. However, it was seen that only 48% of the women had received any advice on breastfeeding during antenatal period and only 17% from a healthcare worker. Support and counselling should be available routinely during ante-natal care, to prepare mothers; at the time of birth to help them initiate breastfeeding; and in the postnatal period to ensure that breastfeeding is fully established.

According to a study conducted in rural Ghana, it was concluded that if all women initiated breastfeeding within 1 hour of birth, 22% of the infants would be saved from death. In the Indian context, this means that 250,000 neonates can be saved from death annually by just one act – initiation of breastfeeding within 1 hour of birth.[31] It was seen that although 92% of the mothers knew the recommendation of initiating breastfeeding within one hour only 36% had actually done it. The data in various studies in India shows that initiation rates vary from 16 to 54.5%.[32] The other reasons (too tired to sit up and feed, baby was sleeping) only reflected that the mothers were not motivated adequately for initiating breastfeeding within one hour of birth. Hence, intensive efforts need to be put for the timely initiation of breastfeeding preferably within the labour room

itself if there is delay in shifting and the importance of early initiation of breastfeeding needs to be stressed to the mothers in the antenatal period itself.

WHO recommends 6 months of exclusive breastfeeding for infants. But, only 38% of the mothers knew that exclusive breastfeeding should be given for 6 months. Studies show that the mean duration of exclusive breast-feeding is estimated to be more than six months in many states in India, ranging from 6.7 months in Tamil Nadu to 10.8 months in Andhra Pradesh. Poverty and ignorance are the main reasons for this practice, which is one of the major causes of malnutrition among infants.[33] Hence, the importance of timely introduction of supplementary feeds needs to be stressed.

Mothers need to know how to express their milk so that they can continue to feed their babies and keep up their milk supply if they are separated from their baby.[34] However, it was seen that the knowledge about benefits and technique of expressed breast milk was very low. Taking into account the increasing proportion of working mothers, this is a very essential element, which needs to be taught to expectant and postnatal mothers by health care workers.

About 38% of the mothers said that they would not breastfeed their child if the child has diarrhoea. Although the rate is better than a study conducted in Australia (45.4%),[35] it is still a matter of concern that dietary practices during acute diarrheal illness is not known to so many women as it has a major influence on recovery from diarrhoea.

Higher breastfeeding scores correlated with higher maternal age, with the age group of 31-35 having the highest scores. Similar finding has been reported in many other studies.[36]

A positive association between breastfeeding and maternal education status is shown in a few other studies.[37,38,39] Hence, focused counselling and support needs to be given to younger and less educated mothers.

Women who had antenatal care from tertiary care centres and from private practitioners had better breastfeeding scores than those who had availed care form primary health centre or health care worker. In a study conducted in India in 2000 showed that those mothers who had delivered in a medical facility had positive effects on breastfeeding practices.[40] Training of health workers in primary care setting on need for appropriate and timely counselling of antenatal mothers on breastfeeding must be stressed. Breastfeeding is of extreme importance for safeguarding health and welfare of the growing infant and this practice must be preserved, protected and promoted by all means. The quality of knowledge and support has a crucial role in the success of breastfeeding promotion.[41]

METHODOLOGY

SOURCE OF DATA

- Study Group: Mothers who delivered in RLJH & RC attached to SDUMC.
- These mothers and her relatives are counselled immediately after delivery about the merits of breastfeeding.
- Study period is from January 2011 to December 2011 or 500 mothers (whichever is earlier).

Inclusion criteria

- All the mothers who delivered a single or multiple live neonates at RLJH & RC.
- Both primi and multiparous are considered.

Exclusion criteria

- IUD/ Neonatal death.
- Mothers of neonates that were shifted to ICU care were excluded.
- Mothers who are retro-viral positive.
- Mothers on anti-malignancy, antipsychotic or anticonvulsive drugs.

Method of collection of data

- Booked cases in RLJH received antenatal counselling about breast feeding in 3rd trimester.
- Being a referral tertiary care hospital, RLJH & RC, most cases were booked and counselled antenatal in PHC's or other private hospitals.

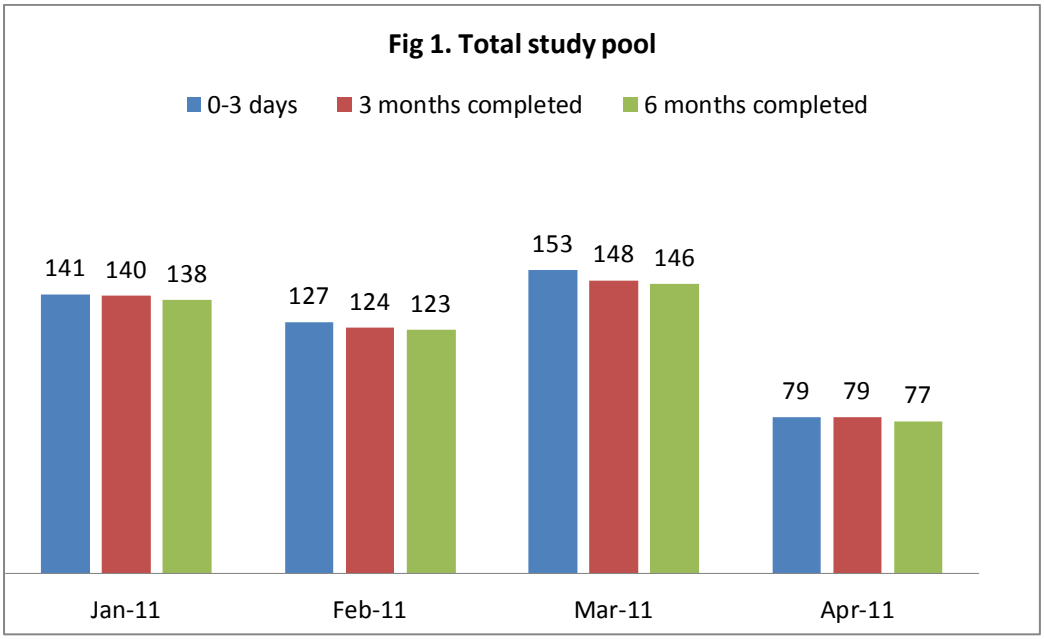
- These mother's relatives were counselled immediately after delivery about the merits of breastfeeding.
- Mothers received postnatal counselling on merits of breastfeeding in the postnatal wards till they are discharged.
- Study period is from January 2011 to December 2011 or 500 mothers (whichever is earlier)
- A 3-step questionnaire is followed.[(enclosed in bibliography)]

    1. Early postnatal questionnaire (0-3 days).
    2. 3 months postnatal questionnaire.
    3. 6 months postnatal questionnaire.

OBSERVATIONS AND RESULTS

Table 1: Total study pool

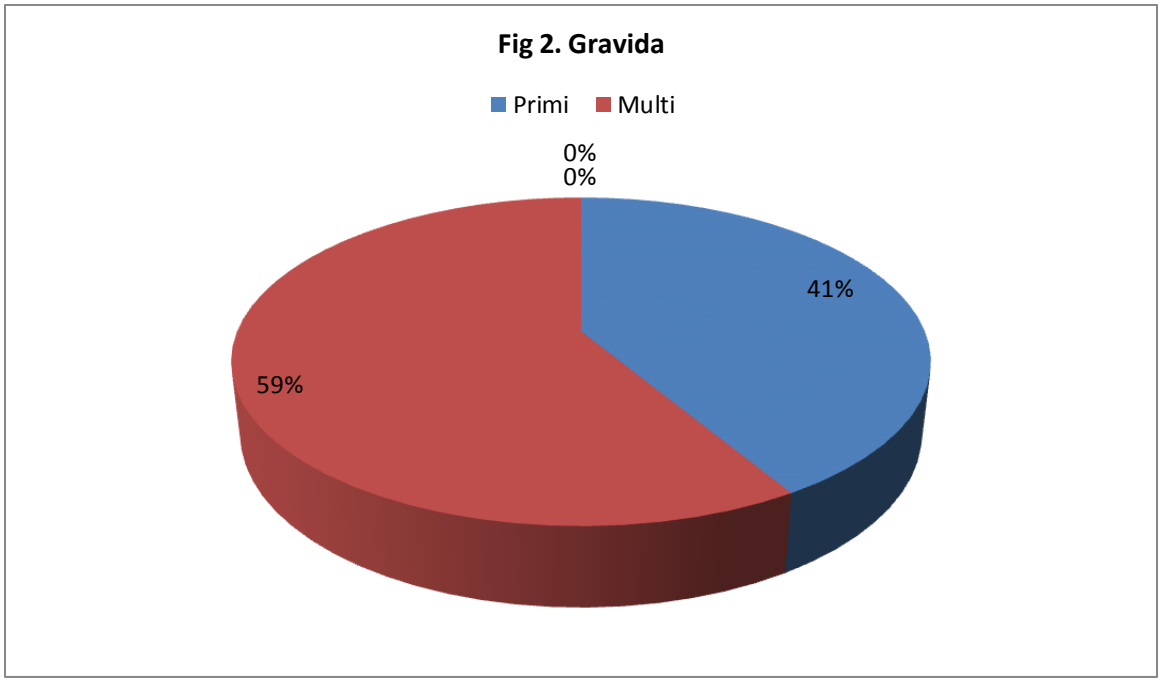
0-3 days	3 months completed	6 months completed
January 2011 (141)	March 2011 (140)	June 2011 (138)
February 2011 (127)	April 2011 (124)	July 2011 (123)
March 2011 (153)	May 2011 (148)	August 2011 (146)
April 2011 (79)	June 2011 (79)	September 2011 (77)



The total number of cases in post natal wards as taken up for study is 500. Study was started in January 2011 and the set criteria of 500 cases were attained by June 2011. Follow-ups were done respectively.

Table 2: Gravida

Gravida	Total 500 cases
Primi	207
Multi	293



Multigravida women outnumbered the primigravida.

Table 3: Age group

age	Out of 500
Below 20	38
21-25	327
26-30	106
Above 31	29

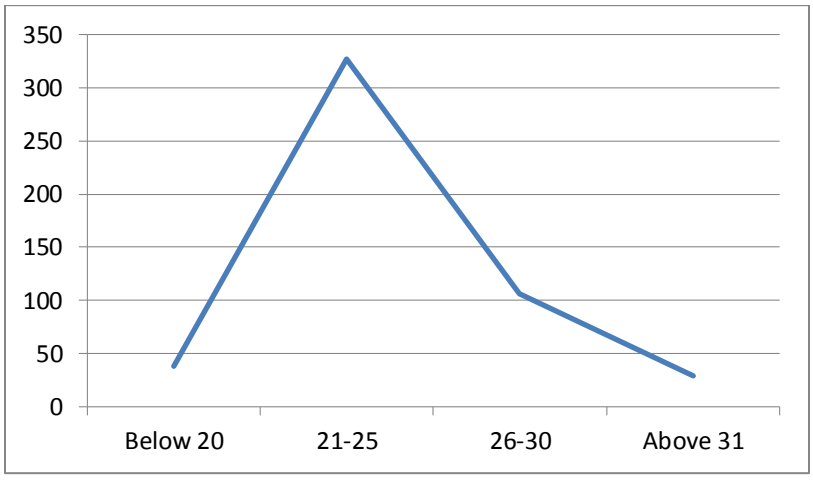


Fig 3. Most number of deliveries was in the age group of 21-25 years

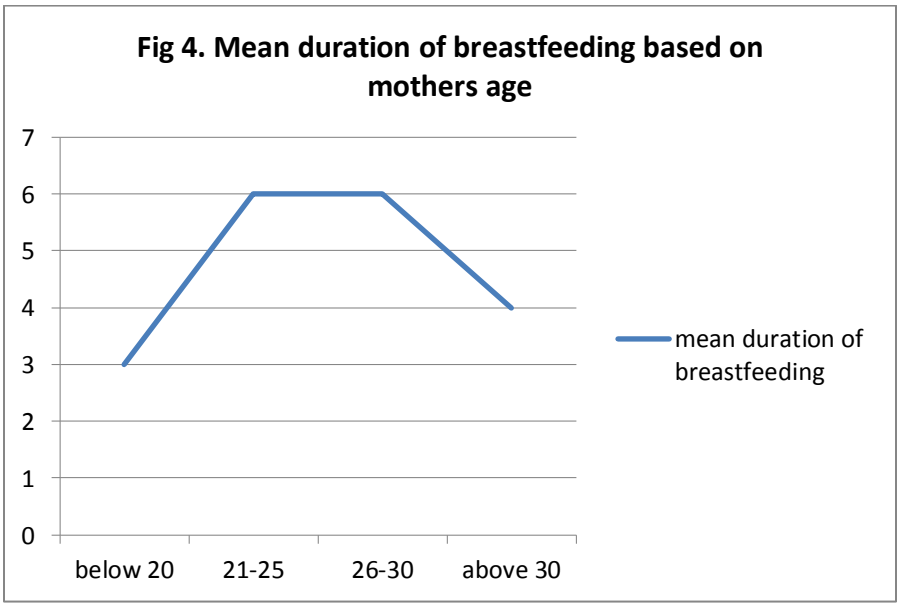


Table 4: Mode of delivery

Delivery	Out of 500 cases
Vaginal delivery	338
Caesarean section	162

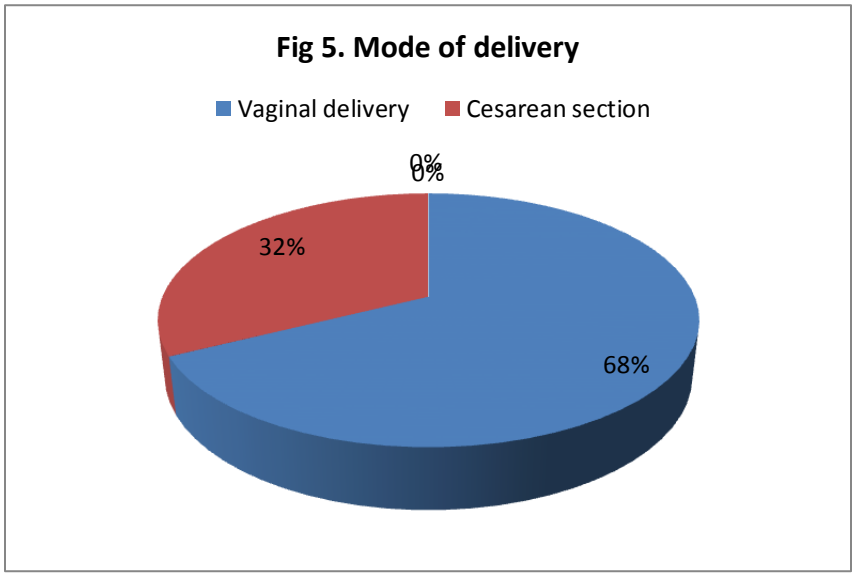


Table 5: Reasons for improper feeding practices according to end of 3rd day

REASON	NUMBER
Social beliefs	11
Caesarean section	09
Top feeding (ignorance)	09
Nipple problems	07
Problems with the breast	02
Total	38

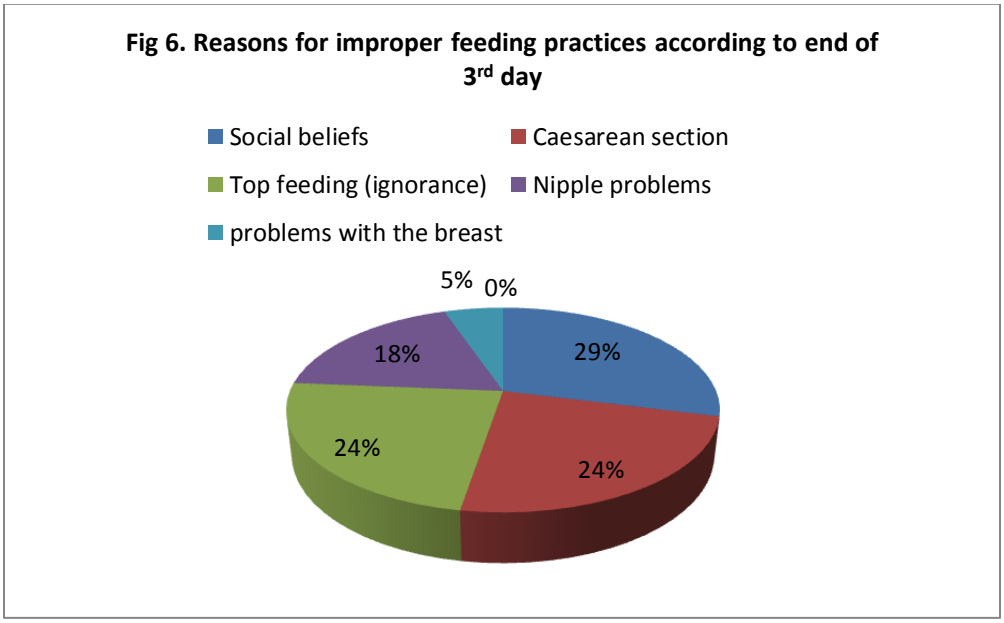


Table 6: Reasons for improper feeding practices according to end of 3 months period

REASON	NUMBER
Social beliefs	11
Caesarean section	09
Top feeding (ignorance)	09
Infant death	09
Bottle feeding	08
Nipple problems	07
Breast engorgement	02
Total	55

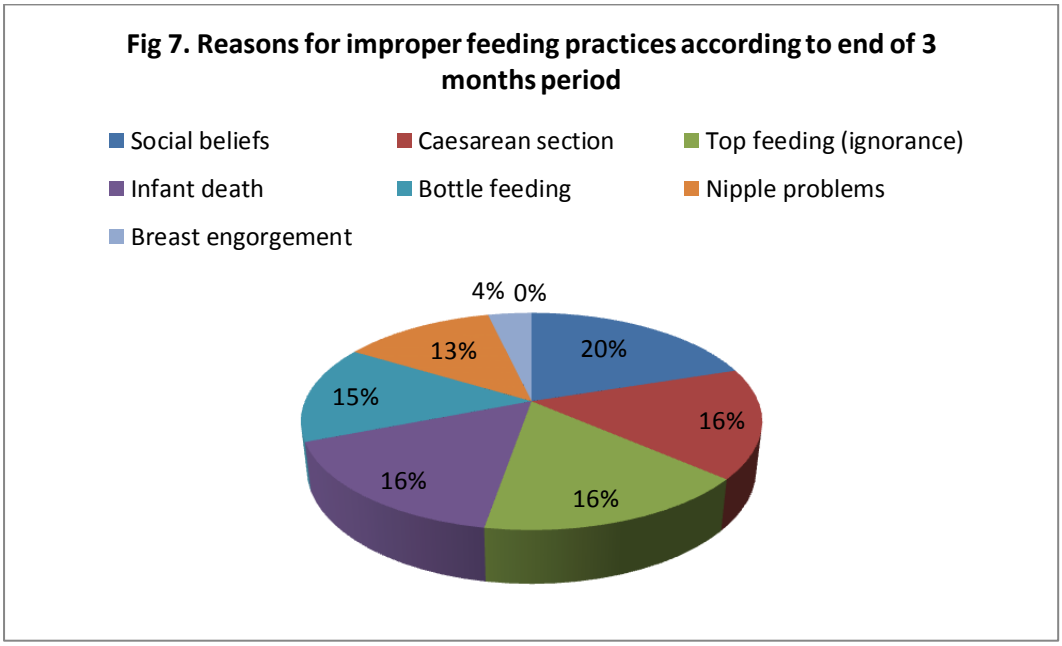


Table 7: Reasons for improper feeding practices according to end of 6 months period

REASON	NUMBER
Psychological	38
bottle feeding/supplementary feeds	31
Social beliefs	19
Infant death	16
Lost for follow-up	13
Top feeds	09
Caesarean section	09
Nipple problems	07
Breast engorgement	02
Total	144

Fig 8: Reasons for improper feeding practices according to end of 6 months period

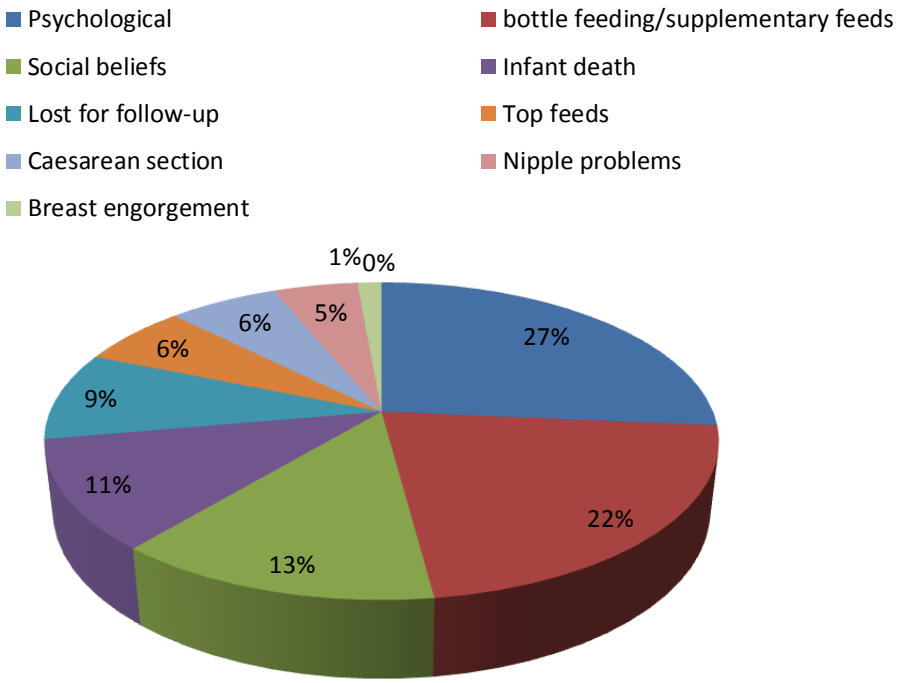


Table 8: Investigation of the four variables related to the duration of breastfeeding in the Cox Regression model

Variable	Regression coefficient	Standard of error	Risk ratio
Primigravida	0.43	3.27	1.53
Mothers age	0.31	2.43	1.35
Psychological	0.41	2.53	1.50
Cesarean section	-0.32	-2.05	0.72

DISCUSSION

The evidence on the benefits of exclusive breastfeeding is unequivocal. A large fraction of the surveyed mothers were aware of these benefits. In 2001, WHO based on a systemic review of scientific evidence[19] recommends exclusive breastfeeding to newborns through to 6 months of age.[1] Breastfed infants are known to grow optimally, perform better on developmental assessment tests and have lesser allergies and infections as compared to formula fed infants.[42-45] Even with its known advantages, breastfeeding rates are sub-optimal the world over.[46-48]

Despite a breastfeeding initiation rate of 92.4%, only 71.2% of our breastfeeding mothers met WHO recommendations (to practice exclusive breastfeeding for the initial 6 months). Initiation of breastfeeding is in accordance with the Dualr program in Jharkhand by UNICEF.[49-51] This can be explained as the study was conducted in a rural area whereas *UNICEF INDIA 2006-2010 statistics* showed a lower initiation rate as they considered both urban and rural population. *Leung et al (Hong Kong)* is exclusively done in an urban population, hence showed a very low initiation rate.

	UNICEF INDIA 2006-2010 statistics	**UNICEF INDIA study Jharkhand (Dular program)**	**Our study**	**Leung et al (Hong Kong)**
Breastfeeding initiation rate	41%	95%	92.4%	66.7%
Breastfeeding according to WHO recommendation	46%	82%	71.2%	13.4%

Results based on the first batch of questionnaires (0-3 days of age) comprising 500 mothers revealed a very high breastfeeding rate for the first month of age. The second batch of questionnaires (3 months of age) showed gradual decrease in breastfeeding rate. Nonetheless, the rate reached the lowest by the fourth and fifth month of age according to the third batch of questionnaire (6 months).This is in contrary to a study conducted by WTK Lee et al[50], where they recorded a very low breastfeeding rate for the first month of age. This trend is attributed to the use of formula feeding which is regarded as trendy, sophisticated and convenient, especially for working mothers.[68]

	WTK Lee et al (urban population in Hong Kong)	Our study (rural population)
Lowest rates of breastfeeding observed	0-3 months	4-6 months
Breastfeeding percentage at the end of 3rd month	5.8 %	89%

The focus of a large number of studies has been on factors that lead to lower breastfeeding rates. There is enough evidence to show that lack of information for mothers; poor knowledge amongst health workers; under qualified health workers providing advice and the use of didactic lectures adversely affects breastfeeding.[46,52,53] Increasing knowledge and counselling skills of health workers and providing additional written instructions to mothers have been shown to improve breastfeeding rates.[48,54,55]

Reasons for not following the WHO recommendation. In chronological order

WTK Lee et al	*Our study*
Restricted food varieties	Psychological
sore nipple and breast engorgement	bottle feeding/supplementary feeds
perceived home confinement	Social beliefs
perceived inadequate milk supply	Infant death
	Top feeds
	Caesarean section
	Nipple problems
	Breast engorgement

Our study recorded an increasing trend towards breastfeeding, which is encouraging. Factors influencing these mothers to breastfeed included: Intervention in the form of counselling, knowledge about breastfeeding, feelings of responsibility and closeness to baby, and encouragement and support from the family, as seen in WTK Lee et al. Husbands were regarded the most influential on initiation and duration on breastfeeding in the study conducted by WTK Lee et al.[50] This is mainly due to the nuclear status of the families in Hong Kong. Whereasin our study parentsand in laws were more influential.Counselling was the most informative about breastfeeding; despite

nurses being the major source of such information, advice from doctors was evidently more popular.[50]

Discarding colostrum as "witch milk" is a common practice in the rural population of Karnataka. Postnatal counselling on colostrum have helped mothers and her family realise its importance and in turn brought down top feeding for the first 3 days. Cultural and traditional practices have considerable implications on lactation and breastfeeding, and in the overall well-being and health of mothers and infants.

Older maternal age, higher birth order, and group counselling also had a positive impact.[56] Caesarean section with delay in shift of the mother from postoperative ward for nursing the child also consists of a significant amount, in our study. Identification of maternal factors that adversely affected breastfeeding in perinatal period would help us to pay more attention to these 'high risk' mother-infant pairs and provide them more focused counselling and support. This would, in turn, ensure a good start for the mother-infant pair and result in better breastfeeding rates in the long run.

The perinatal period was chosen deliberately as the effect of antenatal counselling would be at maximum during this period. Apart from continuing support from hospital staff, there would be maximum peer support in the postnatal ward. Moreover, most of the cases visiting our hospital were booked and immunized at local public health centres and other private clinics.

Of 500 cases forming the final study group, 207(41.4%) were primigravida while 293 (58.6%) mothers had at least one live birth prior to the present one, as compared to *Narayan, Natarajan and Bawa* which had a smaller study group of 54 cases out of which 19(35.2%) were primigravida.

	Narayan, Natarajan and Bawa	**Our study**
Primigravida	41.4%	35.2%

Our study revealed primigravida status, maternal age <20 years to adversely affect breastfeeding which is in agreement with a study by *Narayan, Natarajan and Bawa*. Parity is a factor affecting breastfeeding. Mothers' breastfeeding for the first time need more support as noted by other studies.[59,63,64] Lower maternal age and low birth weight are also mentioned in literature as factors adversely affecting breastfeeding rates.[63-65] But Murray and co-workers reject any relationship between problems faced by breastfeeding mothers and parity.[60] In a study from Singapore, no association was found between primigravida status and exclusive breastfeeding at 6 weeks age.[47]

Upon entering the variables into a multivariate analysis, primigravida status was noted to significantly affect breastfeeding; low maternal age did not contribute to the significantly lower breastfeeding scores seen in primigravida mothers. On stepwise regression, the maternal age variable is weeded out. This is a well-known statistical effect and is a major advantage of stepwise regression in that it eliminates misleading findings.

Maternal education and sex of the infant and the birth to observation interval did not affect breastfeeding in our study. In a study of age at first breast feed in Shimla, Vatsayan and co-workers reported that maternal education did not have any influence.[66] Giovannini and co-workers evaluated 1061 mothers to determine the prevalence of breastfeeding in Italy and failed to find any association between maternal age, profession, education, rooming-in practices and breastfeeding.[67] Our study population also seems to behave similarly.

Our study has the drawback of having only a small group of mothers who received antenatal counselling at our hospital. Though primigravida status, social beliefs and customary practices emerges as factors adversely affecting breastfeeding it would be prudent to strengthen and focus our breastfeeding counselling and support services on primigravidas, younger mothers and their families till there is evidence to the contrary.

CONCLUSION

- Our study recorded an increasing trend towards initiation of breastfeeding.
- Mothers parents and in-laws were found to be influential in the decision making process of child rearing practices.
- Postnatal counselling brought down top feeding for the first 3 days.
- Timely intervention in the form of postnatal counselling to both family and the mother was found to be effective.
- Primigravida status was noted to significantly affect breastfeeding.
- Psychological factors, social beliefs, caesarean section and breast and nipple problems are significant reasons that mothers give for not breastfeeding exclusively.
- Cultural and traditional practices have considerable implications on lactation and breastfeeding, and in the overall well-being and health of mothers and infants.
- Breastfeeding programs should take into account traditional beliefs and concepts when communicating with families about practices such as food restriction and food avoidance.

A further study is merited to understand how these individual factors might lead to low initiation and early cessation of breastfeeding.

Findings from the survey serve as a cornerstone to understand the evolution of breastfeeding practice in rural areas of India.

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ANNEXURE

Questionnaire 1 postnatal (0-3 days) NO

1. Antenatal counselling given or not, if yes by whom
2. Immediate post natal counselling given or not, if yes by whom
3. Did you breastfeed before (question can be skipped for PrimiGravida mothers)
4. Are you planning to breastfeed or not, if yes for how many months
5. If not planning to breastfeed, why
6. Are you able to establish breastfeeding within 1st hour of life, if not why
7. How frequently were you breast feeding
8. Are you comfortable with breastfeeding
9. How frequently are u planning to breastfeed from now
10. Are you planning to add any other feeds to the baby along with breastfeeds, if yes, why

Questionnaire 2 postnatal (3 months) NO

1. Are you continuing breastfeeds? If yes, are you comfortable with it
2. Any problems/ difficulties faced during breastfeeding. If yes how did you face them?
3. How frequently are you breast feeding at present
4. Did you start any complimentary feeds along with breastfeeding
5. Are you planning to continue breastfeeding? If yes for how many months. If no, why
6. Support for breastfeeding from the family

Questionnaire 3 postnatal (6 months) NO

1. Have you given exclusive breastfeeds till 6 months, if no why
2. Have you stated complementary feeds before 6 months, if yes why
3. Are you planning to continue breastfeeds, if yes for how long and why
4. Will you breastfeed the next child, if you are planning for one
5. Any problems faced during breastfeeding?
6. Advantages that you can think of breastfeeding
7. Are you comfortable with breastfeeding?
8. Support for breastfeeding from the family
9. Who influenced you most about breastfeeding?
10. Will you recommend breastfeeding to other mothers?