

# Colostrums Feeding Practices and its Impact on Neonatal and Infant Health

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## Abstract

Colostrum feeding is an unequalled way of providing ideal food for the healthy growth & development of the newborn baby and has unique biological and emotional influence on the health of both mother & child. Although Breast feeding and colostrum feeding awareness is created everywhere by celebrating world breast feeding week, still in many parts of India, the value of colostrums feeding is neglected by mothers and feeding their newborn with pre-lacteal feeds as per their socio-cultural practices. Also it is observed that the newborns are not fed within 30 minutes after birth, which promotes neonatal mortality and morbidity. This source of information influenced the researcher to bring out some facts regarding colostrum feeding practice in India. This review article focuses on Colostrum feeding practices in various corners of India and socio-cultural determinants of discarding the first feed and not feeding the baby early. This suggests that all health professional can play important role for further improvement & promotion of colostrums feeding initiation practice.

**Keywords:** Colostrum Feeding; Pre-Lacteal Feeds; Breast Feeding.

## Introduction

*The wail of a baby taking its first breath  
is the most beautiful sound in the world"*

- Meenakshi Desai

"Today's child is tomorrow's citizen." "Healthy child can be a wealthy nation." Wisely said, healthy population is the nation's prosperity, the health of the child should be preserved for making the nation wealthy. One of the basic needs of the healthy child

is nutrition. By nature, the foetus gets its nutritional requirement from his/her mother in the womb and after delivery it is born with the natural ability to find the warm touch, self-attach and feed from the breast [1].

Breast milk "the Cinderella substance of the decade" is nature's most precious gift to the newborn and equivalent of which is yet to be innovated by our scientific community despite tremendous advances in science and technology. The first milk of breast, *colostrum*, gives the newborn the best start in life. It provides appropriate nutrition, affection, stimulation and protection against infection [2].

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After birth, the first phase of breast milk is thick, straw-coloured and sticky. People call it 'cheek' or first milk. The shastras call it the liquor of life, equal to amrith (Peeyush) and science uses the word colostrum. Colostrum is the most nutritious milk for the newborn baby. Besides its nutritive value, the colostrum is known to promote the immune system of the child providing adequate general immunity for the whole life. Now the slogan for the advanced world is "Colostrum in the breast is best for the baby". Customs, superstition, traditions and ignorance sometimes deprive the child from getting the benefit of this [3,4].

#### *Definition of Colostrum*

Colostrum is thick lemon yellow mammary secretion that is produced immediately after birth. This lasts for 2-4 days after the lactation has started. Colostrum contains 20% protein, predominant among immunoglobulin, less fat, carbohydrate and colostrum capsules which is saturated with lactalbumin [5].

Colostrum is of two types, that is, colostrum gravidarium which is secreted during the first few days following the delivery and colostrum peuperium, which is secreted after labour [6].

The composition of breast milk varies at different stages after birth to suit the needs of the infant. The three different stages are colostrum which is secreted during the first three days, the transitional milk which is secreted during the following two weeks, and the mature milk which is secreted thereafter. It is universally accepted that breast milk is the best for the infant<sup>7</sup>.

#### *Functions of Colostrum*

Human colostrum contains 20 specific antibodies to fight viruses, bacteria yeast and fungus. It provides passive immunity to prevent infections in the newborn [5].

It is reported that colostrum contains high level of immunoglobulin. Immunoglobulins are superior in defense in both treatment and prevention of viral infections, bacteria infections, allergies, yeast and fungus. Human colostrum contains high level of IgA in comparison to IgG and IgM. The secretory IgA of human milk is stable and resistant to gastrointestinal juices and enzymes, thus giving passive immunological protection to the digestive tract of the newborn [5].

It is found that colostrum contains protein rich poly peptide (PRP). PRP has been shown to stimulate

the thymus to regulate the immune system in the body. PRP stimulates the weakened immune system of newborn and also stabilizes hyperactive immune system due to autoimmune disease and allergies in the body [8].

A study in France measured the human milk fat globules (MFG) size distribution in colostrum and transitional human milk in comparison with fat globulin of mature milk and infant formula related to fat digestive function. Colostrum and transitional milk samples from 18 mothers were collected regularly during 4 days postpartum and compared with mature milk samples of 17 different mothers and 4 infants' formulas. The MFG diameter decreased sigmoidally from  $8.9 \pm 1.0$  micron at <12 hour postpartum days versus  $2.8 \pm 0.3$  micron at 90 hour postpartum. In mature milk the MFG diameter was 4 micron on average and increased with advancing lactation, whereas the droplets in infant formula measured 0.4 micron. So it is suggested that human early colostrum contains larger fat fluids than in transitional and mature human milk and in contrast with the small sized fat droplets in infant formula [5].

Human colostrum stimulates cytokine production. These interleukins regulate duration and intensity of immune responses. They boost T cells' activity and have antiviral and anti-tumour activity. Thus the secretion of cytokine may provide an additional mechanism for the regulation of the neonatal immune system and haematopoiesis [6].

Motilin concentration in human colostrum is higher than cow's colostrum and human mature milk. This high concentration of motilin and gastrin concentration in human colostrum may promote the maturation of the developing gut in neonates [9].

It is revealed that establishment of breastfeeding soon after birth serves two functions, that is, close contact with the mother's body makes newborn feel warm and secure. And early seeking provides the baby with colostrum. The colostrum is higher in protein, fat soluble vitamin, minerals and also contains IgA and other proteins that coat lining of body's intestine and protect the infant against infection and allergy. In addition, this aids in passage of meconium. In these days the composition of the colostrum is ideally suited to the needs of the newborn infants. No pre-lacteal feed or artificial milk is required and it is dangerous to give pre-lacteal feeds before mother's milk comes in [10].

#### *Initiation of Colostrum Feeding*

The dangers of pre-lacteal feeds are that they replace colostrum; hence, baby is at a greater risk of

infection and risk of intolerance and allergy. And they interfere with suckling because artificial feeds satisfy hunger, baby sucks less and it becomes difficult to establish breastfeeding. Thus pre-lacteal feeds must be discouraged and 'rooming in' must be promoted [11].

Modern medical science says that breastfeeding is best established by suckling the baby within half an hour of birth. The starting of breastfeeding within the first hour or so of birth is good for mothers, babies and ongoing breastfeeding. A successful first breastfeed has a range of positive effects: it builds the mother's confidence in her ability to breastfeed, the baby starts to receive the immunological benefits of colostrum, baby's digestion and bowel function are stimulated, correct suckling at the breast at this early time may avert later suckling difficulties and the bonding and attachment of the mother and baby are enhanced. After birth baby may remain in an active alert state from 40 minutes up to 2 hours and after which they drop into deep sleep. so immediate breastfeeding after birth is essential to enhance the sucking pattern [8].

A study was conducted in Aligarh (Western UP), India among 212 mothers on breast feeding practices and the benefits of colostrum feeding reveals that initiation of colostrum feeding on the second day was observed in 44.3% of mothers, 35.5% of newborn got breast milk after a lapse of three days, 17.5% on the fourth day and only 5% or 2.6% got it a day after birth. None of the infants received breast milk on the day of birth. This is a contrast to the latest joint WHO/ UNICEF statement; mothers should be helped to initiate breast feeding half an hour of child birth [12].

A study was conducted on the assessment of belief and practices about lactation among 100 mothers of newborn babies in Patna, India. The study reveals that a vast majority (98.2%) of the mothers were breastfeeding, 87.9% mothers used pre-lacteal feeds, only 0.5% breastfed their babies within 6 hours and nearly 50% started after 48 hours. Colostrum was discarded by 82.9% of mothers [13].

A study had undertaken on duration and patterns of breastfeeding among 650 mothers in Delhi. The mothers of infant from 0 to 12 months of age attending health centre were interviewed about the current feeding pattern of the infants and other socioeconomic variables. It was observed that breastfeeding was maintained at a high level (90%) throughout infancy while the time interval between birth and first breastfeed was 24-48 hours in most (48.9%) of the infants. Majority (76.9%) of the infants did not receive colostrum within 1 hour but received pre-lacteal feeds. Hospital born infants received their

first feed earlier and were less likely to receive pre-lacteal feeds as compared to those born at home ( $P < 0.001$ ) [14].

A cross-sectional study was carried out to study the awareness and practices regarding breastfeeding in 335 mothers attending GMCH, Nagpur. It was found that 70.7% mothers had given colostrum to their babies but colostrum feeding was started after birth within 30 minutes (0.6%), within the 12 hours (7.5%), within 24 hours (6.9%) and in 42.4% colostrum feeding was not initiated till 24 hours after birth [1].

A cross-sectional study was conducted on early infant feeding practice in Jinan city, China among 247 mother-infant pairs. The study revealed that breastfeeding was practiced universally, but initiation of colostrum was delayed one or more hours per 51% of subjects. Colostrum was given to 94% of the newborns within the first three days but 34% were given water, artificial milk, glucose or other pre-lacteal feeds as the first feed. Although breastfeeding has probably increased, further promotion in colostrum feeding initiation is still needed in this area [15].

#### *Benefits of Colostrum*

Early initiation of breastfeeding helps the newborn eager to latch on to the breast and suckle effectively. The early and frequent suckling increases infant weight gain and maternal milk production, increases meconium excretion and decreased hyperbilirubinemia in the neonates. Early sucking can also lessen the severity of painful breast engorgement that hinders proper latch on and milk removal for the newborn [8].

It is found that human colostrum is an important source of protective, nutritional and developmental factors for the newborn. It is investigated that low abundance proteins in the aqueous phase of human colostrum after depletion of the major proteins secretory IgA, lactoferrin, lactalbumin, alpha-lactalbumin and HAS by immune-absorption using 2-D-LC and gel-based proteomic methods. One hundred and fifty one proteins are identified, 83 of which have not been previously reported in human colostrum [16].

It is reported that colostrum are rich in proteins and peptides which play a crucial role in innate immunity when transferred to the offspring and may accelerate maturation of the immune system in neonates. Lactoferrin (LF) exhibits antibacterial, antifungal, anti-viral, antiparasitic and antitumoral activities. It is protective with regard to intestinal epithelium, promotes bone growth and accelerates the recovery of immune system function in immune-compromised individuals [17].

Human milk provides species-specific and age-specific nutrients for the infant. Colostrum, the fluid secreted immediately following the birth, conveys a high level of immune protection, particularly secretory immunoglobulin A (IgA). In addition to the right balance of nutrients and immunologic factors that act as biologic signals for promoting cellular growth and differentiation. It also contains multiple substances with antimicrobial properties, which protect against infection [18].

A study had undertaken to investigate the effect of human milk and colostrum on *Entamoeba histolytica* in Turkey. Samples of human milk were collected from 5 healthy lactating mothers. The medium with human milk at concentrations 2%, 5%, and 10% was obtained. The results found that the lethal effect of *E. histolytica* on the medium supplemented with different concentrations of both colostrum and mature human milk was significant during the first 30 minutes. So it concluded that colostrum and mature human milk have significant lethal effect on *E. histolytic* and protect again its infection in breastfed children [19].

It is revealed that human colostrum is rich in lactoferrin which is an iron binding protein that plays important role against cancer cells and also has antiviral and anti-bacterial properties and anti-inflammatory properties. Lactoferrin can prevent reproduction of bacteria and releases iron for the red blood cells. Lactoferrin receptors have been identified on the immune cells and involved in release of cytokines. Lactoferrin has been implicated in treatment of diseases like cancer, HIV, herpes, chronic fatigue, candidiasis and other infections[5].

Vitamins and minerals are most important nutrients essential for the normal metabolism, growth and development. They act as coenzymes throughout the baby. They help in maintenance of health. They are naturally balanced and provided in the colostrum depending upon the needs. There are more than adequate amounts of vitamins like C, E and A in the colostrum. These vitamins make colostrum to serve as antioxidants in the body [20].

A research was conducted on comparison of free amino acids (FAA) in full term and pre-term human milk and infant formula among 67 delivered mothers in Taiwan. Human milk was obtained during three different stages of lactation (colostrum, transitional and mature milk). Sixty seven samples were collected from 44 healthy mothers of term infants and 23 mothers of premature infants 29 to 36 weeks' gestation. Two brands of powdered term formal (TF-A and TF-B) and two brands designed for preterm infants (PTF-A and PTF-B) were also studied. Ion

exchange chromatography was used for free amine acid analysis. The findings revealed that the mean concentration total FAA in human milk was significantly higher than any of the infant formulas. FAA concentration in term and pre-tem human colostrum human milk was significantly higher than in human transitional and mature milks [21].

### *Colostrum Feeding Practices*

In our country, child deaths account for two-thirds of total mortality and half of the paediatric deaths occurring in infancy. Two-fifth of infant deaths fall in the first month of life and nearly half of them occur in the first week of life. In 2003, the infant mortality rate was 64 per 1000 live births. The poor breastfeeding practices are to a great extent, a man-made problem, which directly or indirectly contribute to infectious illnesses, malnutrition and mortality in newborns [22].

The 2002 UNICEF report says that every day between 3000 to 4000 infants die from diarrhoea and acute respiratory infection because the ability to feed them adequately has been taken away from their mothers. Ignoring the colostrum feeding is a global problem which promotes mortality, morbidity, personal, national and economic stress [23].

A study conducted in rural India among 820 infants on the effect of colostrum on infant mortality revealed that more than half of the mothers did not know about feeding colostrum to their babies and 8.2% of neonates die who did not receive colostrum [24].

A longitudinal analysis was conducted on infant morbidity and the extent of breastfeeding in the US. The analysed data from 803 mothers revealed that 11.4% of the infants had diarrhoea and 13.2% had an ear infection. Among those infants who received pre-lacteal feeds had 80% increase in risk of developing diarrhoea and 70% increase in the risk of developing ear infection compared with infants who are fed with colostrum and exclusively breastfed [25].

Knowledge is the only instrument of production that is not subject to diminishing returns. One of the best and fastest ways of acquiring knowledge is to insist on remaining ignorant about things that aren't worth knowing. The healthy growth and development of infants are associated with the knowledge of meeting the basic needs of growing infants. Colostrum feeding soon after birth lays the foundation of nutritional needs for the newborn baby. But many mothers are far backward in the knowledge which deprives the newborn from enjoying his needs and rights [26]. So the study aimed to assess the

knowledge and practice of mothers regarding colostrum feeding.

A study was conducted on knowledge and practice of breastfeeding among 600 rural mothers in Delhi. The study found that 52 mothers discarded their colostrum, thinking that it is harmful for the newborn and usually causes constipation, vomiting and other digestive problems. Eighty mothers discarded the colostrum at the advice of older women of the society without having any knowledge regarding its harmful or beneficial effects. Four mothers kept squeezing out their breast milk for 3-4 days as some customary ritual [27]. These findings concluded that poor knowledge leads to doing the wrong practices regarding colostrum feeding.

Breastfeeding is a rich traditional practice in the Indian society. Many social, moral and mythological factors are attached to the practice of colostrum feeding. In traditional Indian societies, majority of the mothers reject the colostrum, considering it dirty, indigestible and harmful. However, recent scientific researchers recognised colostrum as the most suited food for the baby world over [28]. In view of these changing concepts and practices, it appears pertinent to estimate the present status of colostrum feeding practices.

Infant mortality is the leading cause in developing countries like India. The country's limited resources and health infrastructure and paucity of trained personnel emphasise to enhance the cost-effective measures through breastfeeding practice to bring down the mortality rate and achievement of the goal 'Health for All 2020 AD'. Recently there has been a surge of interest in the relative value of colostrum feeding compared to artificial feeding. Promotion of breastfeeding practice including colostrum feeding is a high priority concern today throughout the world and more so in the developing countries. Hence a series of steps have been taken across the world to increase the incidence, duration and initiation of breastfeeding [28].

Ever since this new information has emerged the public health agencies throughout the world have initiated awareness generation programmes for promotion of use of colostrum and breastfeeding. In view of this important upsurge it is felt necessary to work out the present status of knowledge and practices about colostrum feeding mothers.

Breastfeeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. A large number of traditional practices are positively harmful but are widely practiced in India. In certain communities

mothers are advised to discard colostrum and give pre-lacteal feeds like honey, janam ghutti, sugar water or tea [29].

A survey was conducted in different states of India on the perception and practice of colostrum. Seventy percent of women from nine states (Maharashtra, Uttar Pradesh, MP, Bihar, Karnataka, Gujarat, Rajasthan, Tamilnadu and West Bengal) said they discarded colostrum. Women in MP explained that they do not remove any fixed amount. Women in Bihar and West Bengal said they remove one or two to five or six teaspoonfuls because the first milk is stored in the body for a long time and is stale. Seventy three percent of women in five states (MP, UP, Maharashtra, Rajasthan and Gujarat) said they remove only a few drops of colostrum before feeding the baby to ensure a clean and clear passage and to avoid the first secretion causing colic or diarrhoea to the infant [4].

A study was conducted to assess the practice of breast feeding with special reference to lactation failure among 274 lactating mothers in a remote rural area of Karnataka. It was revealed that majority (97.09%) of mothers breastfed, but 58.4% rejected colostrum while a small number of mothers (19.8%) started supplementary feeds. Initiation of colostrum within four to six hours was noted only in 8.03% of mothers where as 53.07% and 9.72% of subjects started sugar water and castor oil as pre-lacteal feeding respectively [7].

Colostrum, nature's own vaccine, which provides primary defence against infantile infection, is probably the single most cost-effective child survival measure available. Yet in this fast moving modern world, this fact is being neglected by many mothers, resulting in ill health and increasing morbidity among children. It is preferable to avoid any pre-lacteal feeds to prevent the potential risk of infection and mothers should be encouraged to put the baby straight to the breast as soon as she has recovered from the exhaustion of labour<sup>18</sup>. The physiological inadequacy of lactation during the first two to three days does not impose any risk to a healthy newborn baby as long as he is not denied the virtues of colostrum. So it is of paramount importance that all mothers must be aware of the advantages of natural dynamics of nurturing, and this practice must be preserved, protected and promoted by all means [30].

Recently UNICEF and WHO extended the special role of maternity services to protect, promote and support early initiation of breastfeeding and all newborns should have the right to get first milk from their mothers. For breastfeeding to be successfully initiated and established, mothers need the active

support following birth. Ideally all health personnel with whom new mothers come into contact will be committed to promote colostrum feeding and will be able to provide appropriate knowledge on colostrum feeding [20]. This source of evidence encouraged the investigator to take a supportive role by assessing the status of colostrum feeding practices.

Nothing can be more damaging to a newborn's health than depriving it of the first milk of its mother. Colostrum is an unequalled way of providing ideal food for the healthy growth and development of the newborn (WHO/UNICEF statement). Each individual has self-care potential in assuming their responsibility, but for newborns, the mother is the first caregiver who is responsible for safeguarding her child's health and should volunteer to take turns to feed the baby with her first milk [12]. Thus the investigator felt the need to assess the knowledge and practices associated with colostrum feeding, an essential step to bring about positive behavioural changes in postnatal mothers.

Newborn babies constitute the foundation of a nation and no sensible government can afford to neglect their needs and rights. Healthy and sturdy babies are likely to evolve as physically and mentally strong adults and enhanced quality of human resource development. Every minute 50 babies are born in India accounting for 20 million births every year. Almost three neonates die every minute leading to 1.2 million neonatal deaths every year, thus accounting for 31% of global neonatal deaths. In 2003, the NMR was around 45 per 1000 live births and it accounts for nearly two-thirds of IMR [6].

The colostrum is thick, straw-coloured and sticky. Sometimes it is called 'bad milk' or just ignored as being 'not milk' as opposed to 'real milk.' Many women feel that the first milk has been stored in the body for months and they consider it stale and unhealthy [4].

A cross-sectional study was conducted to assess existing breastfeeding patterns, beliefs and attitudes among 921 Kurdish mothers, Turkey. The analysis revealed that nearly all mothers had breastfeed their infants but about 62.2% of the mothers had waited for at least 24 hours before initiating breastfeeding. Almost half of the infants received sweetened water as a first feeding. Early introduction of sugared water and supplementary feeds was considered desirable [31].

A descriptive study was conducted on assessment of newborn care practices in low socioeconomic settlements of Karachi, Pakistan among 525 recently delivered women. The analysis revealed that 44.8% women reported giving lacteals, only 41.7% gave colostrum, 3.1% fed babies with animal/formula milk

as the first feed [32].

A study was conducted to assess knowledge regarding neonatal feeding practices among 387 women in Pakistan. Results found that 98.6% mothers had knowledge that during neonatal period, breast milk is the preferred feed, however, honey (28.7%), ghutti (27.8%), and water (11.8%) were given in order to reduce colic and act as a laxative [33].

A study had undertaken to determine the knowledge and attitude of teenage mothers towards breastfeeding among 80 primigravida mothers attending the antenatal care services at the Liverpool Women's Hospital. The study revealed that out of 40 teenage primigravida, 23 had poorer knowledge about breastfeeding and only one teenager had knowledge about colostrum. The author emphasized more research is needed to understand how to improve the knowledge and motivation of adolescent girls to breastfeed [34].

A study was undertaken to assess the knowledge, beliefs and practices of infant feeding practices during the first six months of life in a rural area in Tanzania and 107 mothers were interviewed. The study results showed that 64% of the sample was put to the breast within two to eleven hours, pre-lacteal feeds were given to about 25% of the infants. The type of pre-lacteal fluid given was mainly glucose water in hospital and plain water with home deliveries. Colostrum was discarded by 46% of the mothers [35].

A descriptive study was conducted on assessment of knowledge, attitude and practical regarding colostrum feeding among 310 mothers in five rural communities in Nassarawa state, Nigeria which revealed that 54% of mothers did not give colostrum to their babies. Only 28.6% of babies were breastfed within 24 hours of birth. The pre-lacteal feeds ranging from water, formula or herbal tea were given by all the mothers. It was observed that 52.3% mothers were illiterate and 47.7% were literate. Giving babies colostrum was seen more amongst mothers with higher level education ( $P < 0.001$ ) [36].

A descriptive study was conducted to assess the knowledge and practices of mothers regarding colostrum feeding among 2105 mothers in rural areas of Bangladesh. The findings showed that only 12% stated that the first food for newborn should be colostrum, 10% gave colostrum only, while the rest gave pre-lacteal feeds to their newborn. A significant relationship was found to exist between knowledge and practice of giving colostrum. Also women between 20 and 24 years of age were more likely to give colostrum feeding [37].

A longitudinal study was conducted to assess the breastfeeding practices and beliefs among 52 mothers of infants aged 0-12 months, in an urban community of Lahore. The findings showed that 65.4% mothers discarded colostrum and pre-lacteal feeds were given to 94% infants. Water was considered essential from the very first day in 55.4% cases and breastfeeding was initiated ( $47.4 \pm 32.58$ ) hours after birth. The practice of discarding colostrum and replacing it with a wide range of pre-lacteal feeds and late initiation of breastfeeding has implications for further strategies [38].

A longitudinal study was conducted to assess the socio cultural factors influencing nutritional states of infants among 200 infants in a rural area Aligarh, India. The researcher found that 99% of the infants received a pre-lacteal feed, especially ghutti (94%) within 6 hours of delivery, 99% were breastfed between 6-72 hours of birth. Almost all mothers believed ghutti cleanses the intestine and that colostrum is harmful. Colostrum was discarded by 94% mothers, 73.5% of infants received top diluted milk because they believed undiluted milk causes diarrhoea [39].

A pilot study was conducted practice on current breastfeeding and complimentary feeding practice among 35 mothers in a slum area, New Delhi. Data and it was found that 54.3% mothers initiated breastfeeding after 3 days of child birth, colostrum was discarded by 77% considering it dirty and unfit for the baby, 80% gave pre-lacteals like honey, unboiled water, sugar syrup and ghutti; mothers considered them as cleansing agents for discarding colostrum [40].

A descriptive study was conducted on breastfeeding practices in four randomly selected villages in western Uttar Pradesh among 212 pregnant women. The results revealed that only 11.8% of the women gave colostrum to their infants and 88.2% did not give it in spite on constant efforts to motivate them to do so. The reason for not giving colostrum cited by 63.6% of the women was the religious beliefs that dropping milk on mother earth would ensure a continuous flow of milk, otherwise breast milk would dry up. Some believe it was thick (12.8%), unclean (11.8%), and its removal would make suckling easy for the baby (11.8%) [12].

A descriptive survey was conducted on colostrum feeding practice in seven districts of Madhya Pradesh among 212 women reveals that only 51.5% as stating that colostrum was important and other reasons for not feeding the baby with colostrum were dirty (25.9%), harmful (23.0%), baby will become ill (13%), causes pain in the abdomen (3.4%), too thick (2%),

and stagnant (1.4%). Almost a third of the respondents did not give any reason for discarding it [41].

A cross-sectional study was carried out on the awareness and practices regarding breastfeeding among 335 mothers, attending GMCH, Nagpur. Although breastfeeding was universal, exclusive breastfeeding was being practised in only 19% of infants. In 42.4% breastfeeding was initiated more than 24 hours after birth, and pre-lacteal feeds were given by 66.3% mothers. The commonest reason for discarding colostrum and early introduction of artificial feeds was insufficient milk as perceived by mothers. Among pre-lacteal feeds honey was the most popular feed given by 54.2% followed by jaggary water by 28.3%, glucose water by 15.7%, and boiled water decoction was routinely given to 46.6% newborns to improve their digestive capabilities [1].

A study had undertaken on knowledge and practice about breastfeeding and food supplementation of the newborn among 100 postnatal mothers at the Patna Medical College and Hospital, India. The findings showed that 18 mothers were not breastfeeding due to poor milk output, breast disease and lactation failure, 87.9% supplemented with pre-lacteal feeds, 47.5% with sugar water, 16.0% with plain water, 13.55% with milk powder. The colostrum was discarded by 82.89%, breastfeeding was initiated within 6 hours of birth by only 0.5% mothers, 50% began suckling on the third day and the rest 48 hours after birth [42].

#### *Socio-Cultural Determinants of Colostrum Feeding Practice*

Colostrum feeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. The epidemiological factors which are correlated with colostrum feeding practices mainly are parity of mother, educational status, residence, occupation, parental income, sex of the child, order of birth etc [29].

Breastfeeding is a valuable measure of beliefs, practices and traditions. It is also subtle indicator of the changes that occur in the social, economic and cultural values of a society. Many cultures believe that breastfeeding should be started after a feed of honey, ghee and herbal feeds. Some mothers think colostrum as thick, viscous and heavy to digest for the newborn baby. Some practiced squeezing out some milk before feeding the baby. If the child sucks at the breasts that are filled with milk, it may go into the air passage producing cough, difficulty in

breathing, vomiting and fever [4].

A longitudinal study was undertaken to assess the existing colostrum feeding practices in relation to important epidemiological correlates among 101 infants in S K Institute of Medical Sciences, Srinagar (Kashmir), India. It was observed that there was association between colostrum feeding practice and educational status, employment, family income. Infants of literate parents received colostrum feeding in excess (81.25%) than those who had uneducated parents (40.00%). Similarly in employed mothers, the proportion of colostrum fed infants was (20.00%) less than those unemployed mothers (61.45%). First born and female infants had relatively less chance of receiving of colostrum feeding. Families with low socio-economic score (6.12) practised colostrum feeding in excess than families with high socio-economic score [29].

A study was undertaken to investigate the social customs and beliefs surrounding colostrum feeding among 300 women at the Umaid Hospital, (Jodhpur) Rajasthan, India. The women ranging in age from 15-42 years were interviewed to collect information on social and family variables on colostrum feeding. It was found that 34.7% were residents of rural areas and the respondents believed in inaugural feeding with honey, animal milk and janam ghutti; on the other hand 34.7% were rural women preferred jaggary water and tea as the inaugural feeding. Ceremonial rituals prior to beginning colostrum feeding was favoured by 65.8% urban and 46.1% rural women. Nearly 33% urban and 40.6% rural mothers favoured colostrum feeding restriction during maternal illness and during illness of the child, 48.4% urban and 51.9% rural women favoured colostrum feeding restriction. It was observed that 79.7% of the women gave inaugural feed because of advice of an elderly family member or family tradition. The colostrum feeding practices reflect a strong interlocking influence with demographic variables as do the preferences of women for inaugural feeds [43].

A study was conducted on practices related to breastfeeding among 200 rural working and non-working women of Haryana. Analysis revealed that 82% mothers were aware that breastfeeding should be started within 24 hours after birth, 72% mothers had given pre-lacteal feed in the form of ghutti and honey within 24 hours of birth, only 28% of mothers breastfed the infants within 3 hours of birth and colostrum was considered bad for infants health by more than 50% of mothers [44].

A cross-sectional study was conducted on breastfeeding intentions, patterns and its

determinants including socio-economic, religious and ethnic background among 518 mothers with infants attending hospitals in La Paz, Bolivia. The results found that the exclusive breastfeeding rate in infants < 4 months was 46%, the use of pre-lacteal feeds ( $P < 0.0001$ ,  $n = 436$ ), not feeding the infant colostrum ( $P = 0.0008$ ,  $n = 436$ ). Rural mothers were four times more likely to discard the colostrum than urban mothers ( $P = 0.0110$ ,  $n = 501$ ). Avoidance of pre-lacteal feeding and use of colostrum were associated with demographic determinants [45].

A study was carried out to find out the popularity of the practices of breast feeding in Delhi among 600 mothers. It was observed that 28.7% were illiterate and 44% were educated up to middle class. Most of the educated mothers opined that colostrum feeding should be given to the newborn. Few primipara (10.6%) could allow colostrum feeding while 22.6% multipara had given colostrum feeding to their baby after birth. It shows that the parity of mothers influenced the colostrum feeding practice [13].

A recent study on Breastfeeding Practices among Rural Mothers-Case Study of Loni Village, Ahmednagar, India revealed that 60% of the mothers had feed colostrums of their babies on the first day. Prelacteal feed were given up to 42% infant. The majority of the mother (43%) started breast feeding their infant within 1 hour after the child birth [46].

Another cross-sectional study conducted on Infant feeding practices in Bhaktapur, Nepal, health facility based survey which found that three quarters of all mothers reported that they did not receive any information on breastfeeding during the antenatal visit. Two hundred and ninety five (91%) mothers gave colostrum and 185 (57%) initiated breastfeeding within one hour of delivery. The prevalence of exclusively breastfeeding at 1, 3 and 6 months were 240 (74%), 78 (24%) and 29 (9%), and partial feeding was initiated in 49 (15%), 124 (38%) and 257 (79%) babies, respectively. The main reason, according to the mother, for introducing other foods before six months of age was insufficient breast milk. In logistic regression analyses, mother's knowledge on how long child should be given only breast milk and not living in joint families were associated positively with exclusive or predominant breastfeeding for four months or beyond [47].

## Conclusion

Colostrum feeding for the newborn is probably the single most cost-effective child survival measure available and the infant's primary defence against



infection. Yet in this fast moving modern world, this fact is being neglected by many mothers, resulting in ill health and increasing morbidity among children. Colostrum feeding 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 time is ripe enough to awaken the healthcare providers who have great influence on the family, especially on the mothers on colostrum feeding practice in the hospital and community level.

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