

# MOTHER MILK: A NATURAL IMMUNITY BOOSTER CONSTANT AHEAD FOR INFANT

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## Abstract

**Background:** MM is a natural process of nursing the infant. MM is standard for infant feeding and nutrition according to the statement of the APA. The WHO and UNICEF recommend that initiation of mothers first milk within the first hour after the birth, exclusive feed of MM for the first six months, and continued breastfeeding for two years or more. According to UNICEF 43% of infants fed with prelacteal which may lead difficulties to attachment breastfeeding and reduce child demand for breast milk. During the lactating period, women face many breastfeeding problems such as sore nipple, insufficient MM supply.

**Method:**Data collection for this study was secondary.The literature search for systematic review and meta-analysis was conducted eight databases google scholar, the web of science, research gate, Scopus, Wiley, Hindawi, science direct, PubMed. Studies published between 2010 and 2020 were reviewed. The search terms include “mother milk, breastmilk, breastfeeding, mother milk nutrients, barrier in breastfeeding, breastfeeding barrier. Studies published between 2010 and 2020 were reviewed.

**Conclusion:** During breastfeeding, mother-infant face many problems such as socioeconomic problems, demographic problems, individual problems, and health-related problems which is become a barrier for infant immunity.

**Keywords:** Infant, Lactation, Lactational Disorders, Nutrients, Socioeconomic Factors.

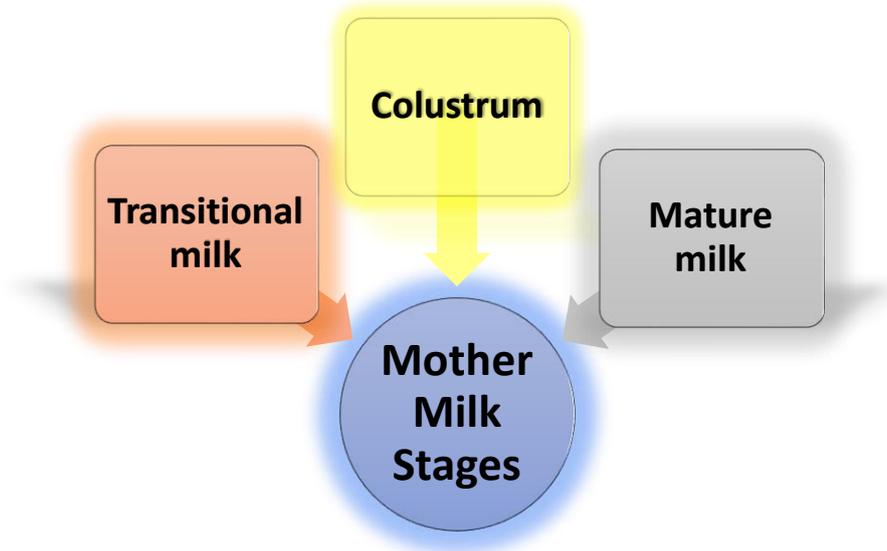
## Key message:

- Mother milk is a blessing for infants.
- Mother milk provides immunity to infant for protecting against infection during the period of breastfeeding.
- Mother milk nutrients serve as multifunction such as anti-inflammatory elements, prebiotics, probiotics growth factors, antioxidants for the infant.

MM is recognized as the normative standard of nutrition for infants for the first 6 months of life. The major components of MM are macronutrients, i.e., lipids, carbohydrates, and proteins.<sup>1</sup> it contains various nutrients, enzymes, hormones, host defense agents, and so on.<sup>2</sup> WHO declared MMF promotion and support as a public health priority in 2003 following reduction in the rate and duration of EMMF.<sup>3</sup> only 43% of the world's newborns are put to the breast within 1 hour of birth. UNICEF estimates that globally around 40% of infants under 6 months of age are EBF, 49% of infants are breastfed up to 2 years of age.<sup>4</sup> approximately 38% of young mothers aged 15-19 years suffer from malnutrition. The prevalence of iron deficiency anemia and iodine deficiency among pregnant women is 40% and 56% respectively.<sup>5</sup> milk composition depends on the length of feeding, time of the day, lactation period.<sup>6</sup> according to the NFHS 2015-16, in the urban area nearly one third and in the rural area around one-fifth women initiate breastfeeding within one hour of birth. Complementary feeding is started early by working women.<sup>8</sup> MM protects against infection and inflammation and early milk is enriched in the immune factor that helps to ensure infant survival.<sup>10</sup> MM confers health benefits of vital importance for the sick and preterm infants in neonatal intensive care units (NICUs).<sup>12</sup> the world health assembly set a global target for 6 months EBF at 50% by 2025.<sup>18</sup>

### Stages of mother milk

The lactation period is one of the most vital periods of a women's life.<sup>11</sup> mother milk is a highly complex, dynamic, and species-specific system that incorporates numerous nutritional and bioactive elements.<sup>7</sup> The lactation period is divided into three different stages: colostrum (1–5 days postpartum), transitional milk (6–15 days after birth), and mature milk (after 15 days).<sup>15</sup>



**Figure 1.**stages of mother milk during the lactation period.

**Colostrum:** the first fluid produced by mothers after delivery is colostrum.<sup>10</sup> MM Called liquid gold for its deep yellow colour.<sup>13</sup> Its produced in low quantity in the first few days but rich in immunological component factors such as IgA, lactoferrin, leukocytes, and growth factor.<sup>10</sup>

**Transitional milk:** Transitional milk but represents a period of “ramped up” milk production and shares some of the characteristics of colostrum. it supports the nutritional and developmental needs of the rapidly growing infant, and typically occurs from 5 days to two weeks postpartum, after which milk is considered largely mature.<sup>10</sup>

**Mature milk:** This mature milk has agood amount of protein, fat, sugar, and water, to help infants continue to grow. It looks thinner than colostrum, but it has the nutrients and antibodies your baby needs for healthy growth.<sup>13</sup>

### Infant Blessed with Mother Milk

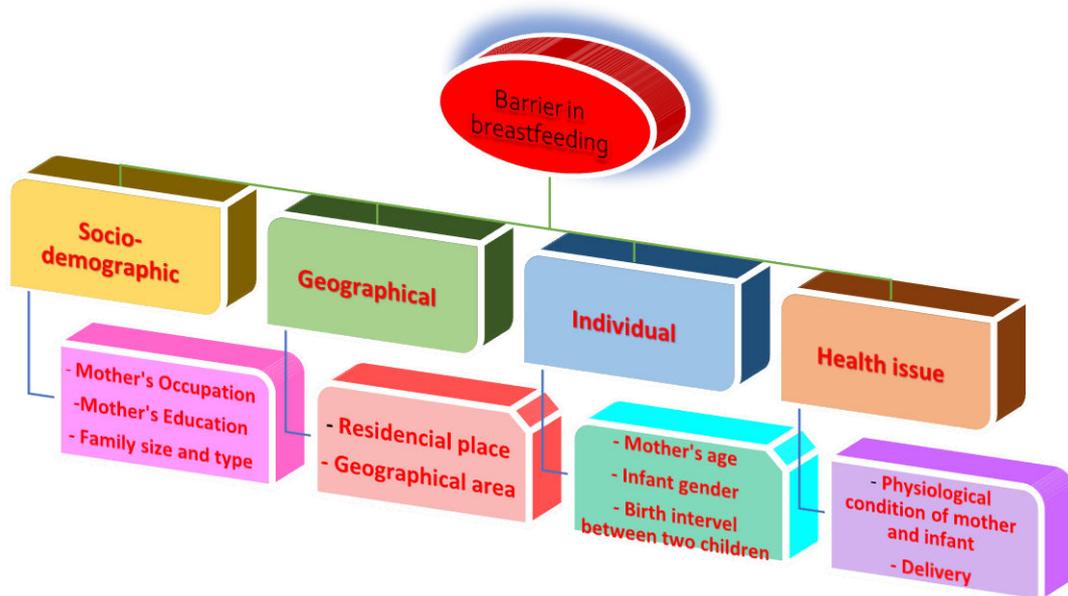
MM is acknowledged as ideal for the nutritional support of preterm infants because of its several health benefits.mother milk feeding implement has been associated with reduced rates of necrotizing enterocolitis, sepsis, improve feeding tolerance, retinopathy of prematurity.<sup>22</sup> breastmilk is recommended as the first choice of nutrition for VLBW infant.<sup>23</sup> breast milk is the best source of nutrition for preterm infants. <sup>24</sup> in the first week of infant's life a highly protective effect on infant mortality, with a 12% decrease in mortality risk compared to non-breastfed. A decrease in respiratory and gastrointestinal infections during the first weeks of life of the newborn.<sup>25</sup> from a nutritional perspective, infancy is a critical and vulnerable period. Because of immaturity in tissue and organ involved in nutrient metabolism, infants display a narrow tolerance to deviations in nutrient intakes.<sup>26</sup>.

### Barrier

Exclusive breastfeeding is the provision of only MM to a baby for the first 6 months without the introduction of water or other feeds.<sup>17</sup> Breastfeeding difficulties are common. Previous studies in Iran, Sweden, and Canada revealed that 34%, 27%, and 87% of mothers in the early postpartum period reported a breastfeeding difficulty, respectively.<sup>9</sup>breastfeeding success is associated with a number of barriers and facilitators. Birth complications, mode of delivery, medical condition of mothers and infants, physical availability, socioeconomic parameters including age, marital status, income, education and getting back to work negatively affect exclusiveness, initiation, and duration of breastfeeding.<sup>19</sup> despite the known positive impact of breastfeeding on infant survival and health, the rate of EBF globally is low.Low rates of early initiation and EBF are reflective of various factors influencing a mother's inability or reluctance to breastfeed.<sup>20</sup>

**Type of barrier**

The barrier associated with timely or early initiation of breastfeeding as revealed by the existing review is; geographical, socioeconomic, individual and, health-related barriers.<sup>21</sup> Socio-culture beliefs and practices have been noted as a major barrier for the breastfed infant. <sup>17</sup> according to cognitive theory, responsible behavior is correlated with age. Working mothers tend to breastfeed for a shorter period because of difficulty in maintaining lactation, partly due to the stress and conflict involved in combining breastfeeding with work.<sup>18</sup>



**Figure 2.** breastfeeding barrier

Breastfeeding practices will be very important on account that breast milk is the maximum most important delivery of nutrition for them. it appears because the maximum vital feeding exercise to aid the most suitable growth in the course of infancy and youth because it contributes to reduced morbidity and stepped forward nutritional reputation and to bring about higher health effects in later lifestyles.<sup>40</sup> A few troubles that make bigger within the early postpartum period have an impact on sucking and breastfeeding negatively in this era.

Mother milk has numerous benefits for the infants but for much different reason’s mothers were refuse to feed infants.<sup>37</sup> Physical condition in the mother, such as inverted, cessation operation, retracted or flat nipple, insufficient milk production, breast pain, postpartum depression is a barrier for infants. Lack of effective sucking ad nipple confusion could lead to a problem in breastfeeding.<sup>18</sup> According to UNICEF 43% infant fed with prelacteal which may lead difficulties to attachment breastfeeding and reduce child demand for MM.<sup>38</sup>

In low- and center-income countries, the simplest 37% of infants are absolutely breastfed until six months of age, with lots of lower prices stated from high-income worldwide places.<sup>39</sup> Elements that could impact human milk composition can be maternal, infant, physiological, behavioural, and methodological.<sup>44</sup> Breastfeeding self-efficacy refers to a mother’s self-warranty in her potential to breastfeed her little one.<sup>45</sup>

The reasons for breastfeeding by the usage of social employees and health care carriers, emotional pressure sufficient breastmilk, and strain from close family to introduce different liquid and solid food, unsupportive sanatorium practices that do away with early initiation of BF, maternal employment, and shortage business advertising and marketing.<sup>46</sup>

India hosts more than one/3 of the sector’s children who are wasted. From below5 infants in India, 43% are underweight and 40-8 % are stunted because of persistent undernutrition. Simplest 25% of new-borns had been placed to the breast interior one hour of beginning and 46% are solely breastfed. The interplay of sociodemographic variables with feeding practices and institutions of youth morbidity were studied.<sup>49</sup>

Many humans and cultural elements that have an effect on breastfeeding babies. those factors have been said to encompass ladies’ schooling, employment popularity, sociocultural houses, issues related to frame photographs, psychological reputation, useful resource acquired from healthcare employees, and the selection and preference for breastfeeding.<sup>43</sup> Beliefs about colostrum variety in organizations many mothers discard colostrum, believing that it's miles deleterious to the kid. lack of exceptional breastfeeding generally effects from the moms feeling of

no longer enough milk.<sup>42</sup> Breastfeeding is behavior that associated with the relationship among mom and infant and belief that the infant is glad and content fabric is powerful determinates of breastfeeding achievement.<sup>47</sup>

The most common motive of pain in some unspecified time in the future of breastfeeding is because of nipple trauma because of incorrect positioning and beside the point latch-on. Nipple contamination during breastfeeding is as a result of staphylococcus aureus and candida Albicans. Breast engorgement resulting from congestion and obstruction of lymphatic drainage.<sup>50</sup> Urban or rural difference, age, breast troubles, societal barrier, inadequate aid from family, knowledge about suitable breastfeeding practices, mode of delivery, fitness machine practices and network beliefs have all been decided to steer breastfeeding in precise areas of developing countries.<sup>33</sup>

### **Improve breastfeeding practices**

The WHO defines breastfeeding counseling due to the fact the assist of moms and babies, as supplied with the resource of fitness care employees, in selection making, overcoming problems, and implementation of maximum beneficial feeding practices.<sup>41</sup> It's far anticipated that scaling up of MM prevent 823,000 infant deaths, and 20,000 maternal deaths from breast most cancers each year. In the study, breastfeeding schooling extended initiation fees in low-income American women, compared to conventional care, and breastfeeding promotions intervention progressed six-month EBF fees of growing nations via six-fold.<sup>39</sup> Support through partners, some other circle of relatives or friends is important to construct self-efficacy to boom EBF.<sup>47</sup> PPACA 2010 amended section 7 of the FLSA to require employers to offer low-cost damage time for a worker to express Breast milk for nursing little one and a place for specific breast milk.<sup>48</sup> Non-infectious illnesses, in conjunction with eczema dental disease, lymphomas and diabetes seem to arise much less often in youngsters who are breastfed.<sup>29</sup> EBF reduces infant mortality because of commonplace childhood infection including diarrhea or pneumonia, and assist for faster restoration all through infection are properly hooked up particularly in terrible environments too.<sup>32</sup>

### **Method**

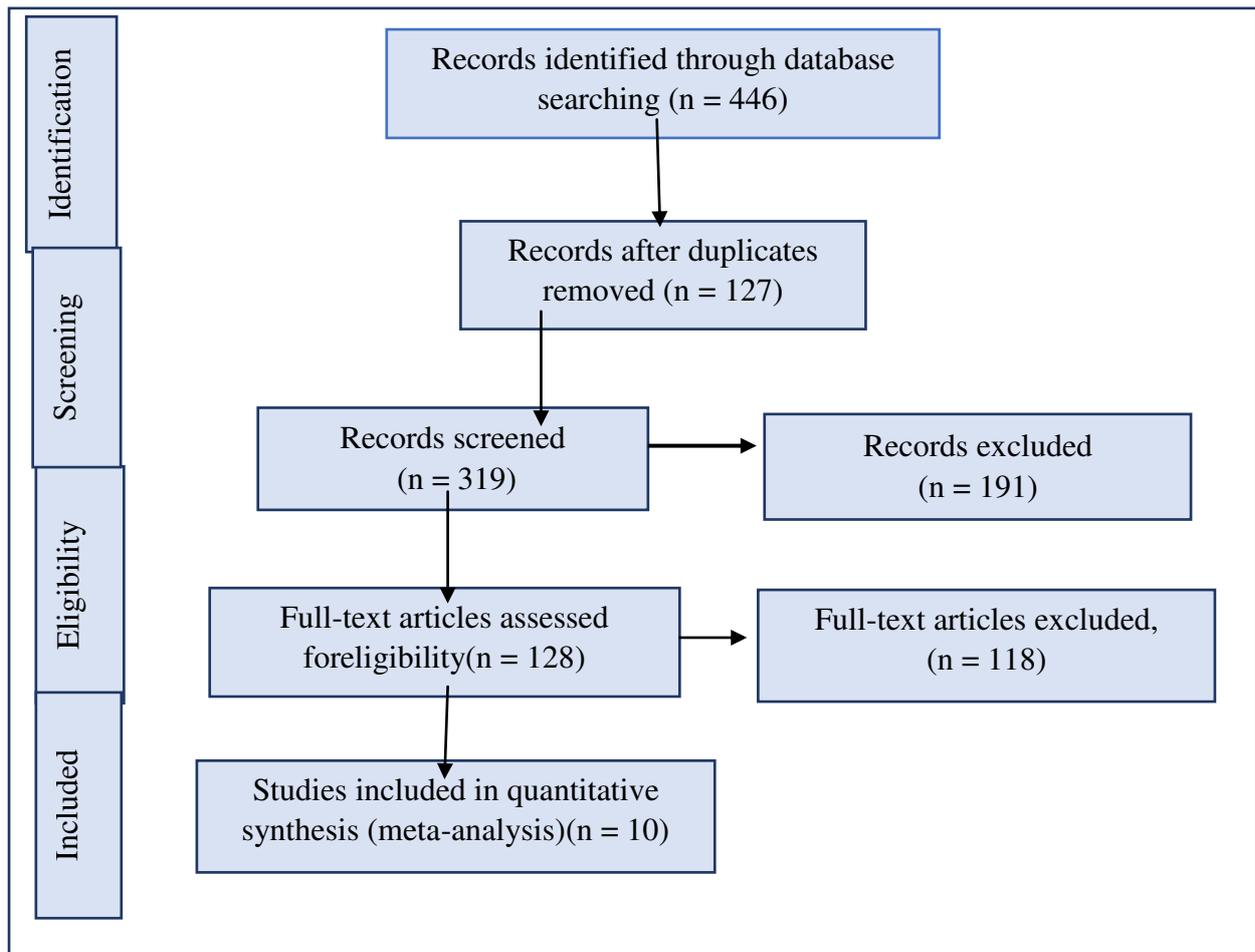
the study was done by using guidelines of PRISMA in preparing the systematic review protocol and in writing review.

### **Search strategy**

A literature search was carried out to identify studies that evaluated the factor affecting breastfeeding of infant/barrier of breastfeeding. All available studies were conducted from 2010 up to 2020. Literature was searched published from google scholar, the web of science, research gate, Scopus, Wiley, Hindawi, science direct, PubMed.

### **Search terms**

The term used for search literature was used: breastmilk or mother milk or human milk or breastfeeding, or exclusive breastfeeding, or lactation, or lactating women, or nutrient in mother milk, or breastmilk nutrients, or composition of breastmilk, or breastfeeding barrier, or factor affecting mother milk, or breastfeeding data.



**Figure 3.** PRISMA flow chart of the paper selection process.

**Inclusion and Exclusion criteria**

Studies were included if they meet the following criteria otherwise, they were not included. Studies included were from both developed and developing countries. Studies of a fully implemented system are available, the work in progress review of that system where be excluded.

**Result**

**Search result**

A selected paper published between 2010 to 2020 in this review using a literature search strategy. A total of 446 items were transferred to Mendeley desktop where 127 duplicate papers were removed. After removing recurrent records according to inclusion criteria, the extraction of data was performed with 10 studies. Figure 3 shows the explanation related to the studies.

Table – 1 Summary of the barrier in the lactation period

Authors (year)	Country	Year in which the sample was conducted	Study design	Data collection tool	Sample size	Basic finding
Khatun H. et al 2018 (20)	Bangladesh	2016	Mixed method study	Interview	342	<ul style="list-style-type: none"> <li>▪ 54.4% prelacteal ministration</li> <li>▪ 23.4% honey</li> <li>▪ 13.7% sugar water</li> <li>▪ 10.8% plain water</li> </ul>
Mohite V.R. et al 2018 (32)	India	2017	Cross – sectional study	Questionnaire	140	<ul style="list-style-type: none"> <li>▪ 6.25% cessation of FBF</li> <li>▪ 37.5% insufficient milk production</li> <li>▪ 6.25% un-satisfaction</li> <li>▪ 6.25% long duty hours</li> <li>▪ 3.12% excess household work</li> <li>▪ 12.5% maternal sickness</li> <li>▪ 6.25% dislike breastfeeding</li> <li>▪ 12.5% infant illness</li> <li>▪ 3.12% congenital anomalies</li> </ul>
Khasawneh W. and Khasawneh A.A. 2017 (30)	Jordan	2016-2017	Cross- sectional survey	Questionnaire	500	<ul style="list-style-type: none"> <li>▪ Multiparity</li> <li>▪ 41% Maternal employment</li> <li>▪ 41% Caesarean delivery</li> <li>▪ 35% Infant hospitalization</li> <li>▪ 152% Previous EBF</li> <li>▪ 53% inadequate milk supply</li> <li>▪ 65% employed</li> </ul>
Muda S.M. et al 2016 (16)	Malaysia	2015	Cross sectional	Questionnaire	152	<ul style="list-style-type: none"> <li>▪ 33.4% insufficient breast milk</li> <li>▪ 29.8% baby refuse the milk</li> <li>▪ 26.3% mother need to work</li> <li>▪ 2.7% maternal problem</li> <li>▪ 7.9% baby hospitalized</li> </ul>

Table – 1 Summary of the barrier in lactation period

Authors (year)	Country	Year in which the sample was conducted	Study design	Data collection tool	Sample size	Basic finding
S. A. et al 2015 (29)	Dhaka	2011 -12	Cross sectional descriptive study		114	<ul style="list-style-type: none"> <li>▪ 46.49% insufficient milk</li> <li>▪ 20.17% poor attachment</li> <li>▪ 17.54% breast engorgement</li> <li>▪ 7.89% cracked nipple</li> <li>▪ 2.63% inverted nipple</li> <li>▪ 1.75% flat and sore nipple</li> <li>▪ 0.877% nipple infection</li> </ul>
S.T. et al 2019 (28)	Bangladesh	2015	Cross sectional study	Interview	98	<ul style="list-style-type: none"> <li>▪ 22.4% breast engorgement</li> <li>▪ 17.3% sore nipple</li> <li>▪ 14.3% insufficient milk</li> <li>▪ 9.2% block duct</li> <li>▪ 6.1% inverted nipple</li> <li>▪ 3.0% flat nipple</li> <li>▪ 2.0% poor attachment</li> </ul>
Suresh S. et al 2020 (36)	India	2011	Prospective cohort study	Pretested proforma	400	<ul style="list-style-type: none"> <li>▪ 72.5 women had problem</li> <li>▪ 13% breast engorgement</li> <li>▪ 70.3% poor attachment</li> <li>▪ 15% flat nipple</li> <li>▪ 17.8% sore or crack nipple</li> </ul>

Table – 1 Summary of the barrier in lactation period							
Authors (date)	Country	Year in which the sample was conducted	Study design	Data collection tool	Sample size	Basic finding	
Zheng T. et al 2020 (35)	Macau	2018	Cross – sectional study	Questionnaire	500	<ul style="list-style-type: none"> <li>▪ 62.2% blocked milk duct</li> <li>▪ 64.6% fatigue</li> <li>▪ 64.2% sleeping problem</li> <li>▪ 38.2% depressive mood</li> </ul>	
Uchenna O. 2012 (34)	Nigeria		Descriptive survey	Questionnaire	240	<ul style="list-style-type: none"> <li>▪ 87.5% interference from mother in law</li> <li>▪ 25% culture to give water with breastfeeding</li> <li>▪ 33.33% pressure from family and friends</li> <li>▪ 62.5% misguided information from family and friends</li> <li>▪ 70.83% feel that baby might not get enough milk</li> <li>▪ 62.5% lack of confidence</li> <li>▪ 91.67% worried about stresses associated</li> <li>▪ 40.83% feared that EBF would crack nipple</li> <li>▪ 91.6% working</li> <li>▪ 70% had no time to breastfeed at work</li> <li>▪ 61.7% lack of adequate education</li> </ul>	
Motee A. et al 2013 (33)	Mauritius	2011	Survey – based study	Questionnaire	500	<ul style="list-style-type: none"> <li>▪ 53.8% had problem with breastfeeding</li> <li>▪ 27.3% employed</li> <li>▪ 22.6% insufficient milk</li> <li>▪ 34.3% breastfed less than one month</li> <li>▪ 33.3% breast engorgement</li> <li>▪ 25.1% fatigue</li> <li>▪ 24.9% back pain</li> <li>▪ 23.2% soreness of nipple</li> <li>▪ 37.9% started use milk substitute for resume to work</li> </ul>	

In the present systematic review observed that mothers experienced various breastfeeding problems. Breastfeeding barriers were substantially common in the lactating period.

In this systematic review, it was found that family size and delivery type effect of EBF. In this study was observed that the structure of the nuclear family, infants' low birth, cesarean delivery was a significant effect on EBF. It shows that chances of cessation of EBF among rural primipara mother were 22.8%.**32**

other findings of the study that both types of the mother (working, and not working) faced many problems during lactation such as breast engorgement, nipple pain /trauma, plugged milk duct, breast infection, and poor milk production, lack of knowledge, the sore nipple are related to the improper position and latching on techniques which is a barrier for the infant's breastfeeding.**29**

The study stated that out of 5, 4 lactating women reported a breastfeeding problem. It shows that the monthly income of the family, work status of the mother, and health-related problem associate with traditional/complementary medicine feeding. Use of traditional/ medicine improve insufficient milk supply, unblock the block milk duct, and improve infant development.**35**

Similarly, other studies showed that Primipara women are less knowledgeable and skillful in breastfeeding, so, they would usually seek assistance, advice, and help from health care professionals who generally promote breastfeeding. Although a greater part of the participants does not experience any difficulties while nursing their infants in which some women complain about breast engorgement, fatigue, back pain, and soreness of nipple. Breast engorgement usually occurs when milk gets accumulated in the breast, while sore nipples arise because of the baby sucking the nipple area of the breast only. Many women faced some problems such as cracked nipples, low milk supply, and breast engorgement.**33**

This systematic review found that the education and occupations of mothers one of the major reasons in decrease infant breastfeeding. This study conducts in the north of Jordan, it was reported that maternal employment, infant hospitalization, and cesarean delivery the main barrier in breastfeeding. Lactation counseling and educational programs help to improve breastfeeding practices. **30**

This study conducted in Malaysia shows that working mothers significantly affected breastfeeding practices most of the mothers stop breastfeeding when they are returning their work. Insufficient milk supply, hospitalization of the baby, mother milk refused by the infant, psychological and physiological barriers decrease EBF. **16**

Same as other studies revealed that most of the mothers reported insufficient breast milk production as one of the main reasons for being unable to exclusively breastfeed. although mothers who had a cesarean delivery did not exclusively breastfeed their child, because Inability to buy/eat nutritious food and intake of medicine after surgery was mentioned as additional reasons for insufficient breast milk which is a misconception of mothers. mothers who delivered by cesarean section qualitatively explained their inability to abide by early infant feeding best practices due to their unconsciousness, sickness, pain, and prescription. medication post-surgery and the subsequent need to supplement breastfeeding due to delayed or inadequate milk production.**20**

This study showed that sore nipple and engorgement of the breast, lack of confidence is a common problem in lactation which is become a barrier in breastfeeding practices or duration. but Oketani message was significant improvement milk secretion and build confidence among mother facing problems during breastfeeding.**28**

This prospective cohort reported that poor attachment, sore and cracked nipple, breast engorgement is a major barrier among the mother-newborn dyads during the hospital stay. Approximately 89% of mother-newborn face one or more breastfeeding problems.**36**

Another study was found that no full knowledge of EBF (exclusive breastfeeding) and the mother would be any unaware of the evidence that they are not doing the right thing and continue endangering the life of their baby by giving poor nourishment and it's at attendant consequences; failure to thrive, poor weight gain, compromised immunity status, exposure to childhood infections, etc. Due to lack of awareness the mother is not known about various benefits of EBF like involution of the uterus, prevention of breast and ovarian cancer, lactation amenorrhea, etc. After giving baby's birth breastfeeding uses approximately 500 calories a day which helps mothers to lose their weight. The evidence that preventable problems such as nipple cracks and breast engorgement were identified as risk factors for the initiation and sustenance of exclusive breastfeeding during babies' first week of life leaves much to be investigated regarding the health education received by these women during pregnancy and after delivery. Pain in the nipple or breast is linked to incorrect breastfeeding techniques.**34**

## Conclusion

Mother milk contains numerous nutrients, hormones, enzymes, host defense agents which is provide improvement in host defense, gastrointestinal function, neurodevelopment, and many other beneficial effects. Mother milk provides natural immunity booster to infants. During breastfeeding, mother-infant face many problems such as socioeconomic problems, demographic problems, individual problems, and health-related problems which is become a barrier for infant immunity. These problems reduce EBF and breastfeeding practices in mother-infant. The educational program, lactational counseling may improve the implementation of EBF.

**Abbreviations:**MM; Mother Milk, BF; Breast Feeding, APA; American Academy of Pediatrics, WHO; World Health Organization, UNICEF; United Nations Children's Fund, MMF; Mother Milk Feeding, EMMF; Exclusive Mother Milk Feeding, NFHS; National Family Health Survey, IgA; Immunoglobulin A, PRISMA; Preferred Reporting Items for Systematic Reviews and Meta-Analysis, VLBW; Very Low Birth Weight, PPACA; Patient Protection and Affordable Care Act, FLSA; Fair Labor Standards Act.

## References

1. Giuffrida, F., Austin, S., Cuany, D., Sanchez-Bridge, B., Longet, K., Bertschy, E., Sauser, J., Thakkar, S. K., Lee, L. Y., & Affolter, M. (2019). Comparison of macronutrient content in human milk measured by mid-infrared human milk analyzer and reference methods. *Journal of Perinatology*, 39(3), 497–503. <https://doi.org/10.1038/s41372-018-0291-8>
2. Hsu, Y. C., Chen, C. H., Lin, M. C., Tsai, C. R., Liang, J. T., & Wang, T. M. (2014). Changes in preterm breast milk nutrient content in the first month. *Pediatrics and Neonatology*, 55(6), 449–454. <https://doi.org/10.1016/j.pedneo.2014.03.002>
3. Moudi, A., Tafazoli, M., Boskabadi, H., Ebrahimzadeh, S., & Salehiniya, H. (2016). Comparing the effect of breastfeeding promotion interventions on exclusive breastfeeding: an experimental study. *Biomedical Research and Therapy*, 3(11), 910. <https://doi.org/10.15419/bmrat.v3i11.132>
4. Sinha, B., Chowdhury, R., Sankar, M. J., Martines, J., Taneja, S., Mazumder, S., Rollins, N., Bahl, R., & Bhandari, N. (2015). Interventions to improve breastfeeding outcomes: A systematic review and meta-analysis. *Acta Paediatrica, International Journal of Paediatrics*, 104, 114–135. <https://doi.org/10.1111/apa.13127>
5. Satter, M., Abedin, N., Jabin, S., Islam, M., Begum, U., & Paul, D. (2016). A highly nutritive supplementary food. *Agro FOOD Industry Hi Tech*, 27(March), 1.
6. Czosnykowska-Iukacka, M., Królak-Olejnik, B., & Orczyk-Pawilowicz, M. (2018). Breast milk macronutrient components in prolonged lactation. *Nutrients*, 10(12), 1–15. <https://doi.org/10.3390/nu10121893>
7. Tarigan, P. B. (2013). 濟無No Title No Title. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699. <https://doi.org/10.1017/CBO9781107415324.004>
8. Gaidhane, A. M., Choudhari, S., Khatib, M. N., & Kawalkar, U. (2019). *Socio-cultural determinants of infant and young. October.*
9. Mortazavi, F., Mousavi, S. A., Chaman, R., & Khosravi, A. (2014). Validation of the Breastfeeding Experience Scale in a Sample of Iranian Mothers. *International Journal of Pediatrics*, 2014, 1–8. <https://doi.org/10.1155/2014/608657>
10. Fields, D. A., & Demerath, E. W. (2013). Human Milk Composition: Nutrients and Bioactive Factors. *Pediatric Clinics of North America*, 60(1), 49–74. <https://doi.org/10.1016/j.pcl.2012.10.002.Human>
11. Sinha, N. K., Maiti, S., & Das, D. C. (2019). Tribal lactating mothers manifest more under nutrition in rural areas of Paschim Medinipur district of India. 4(1), 295–297.
12. Arslanoglu, S., Moro, G. E., Bellù, R., Turoli, D., De Nisi, G., Tonetto, P., & Bertino, E. (2013). Presence of human milk bank is associated with elevated rate of exclusive breastfeeding in VLBW infants. *Journal of Perinatal Medicine*, 41(2), 129–131. <https://doi.org/10.1515/jpm-2012-0196>
13. Your guide to breastfeeding. Retrieved from <https://www.womenshealth.gov/files/documents/your-guide-to-breastfeeding.pdf> accessed 24/08/2020
14. Truchet, S., & Honvo-Houéto, E. (2017). Physiology of milk secretion. *Best Practice and Research: Clinical Endocrinology and Metabolism*, 31(4), 367–384. <https://doi.org/10.1016/j.beem.2017.10.008>
15. Sousa, S. G., Delgadillo, I., & Saraiva, J. A. (2016). Human Milk Composition and Preservation: Evaluation of High-pressure Processing as a Nonthermal Pasteurization Technology. *Critical Reviews in Food Science and Nutrition*, 56(6), 1043–1060. <https://doi.org/10.1080/10408398.2012.753402>
16. Muda, S., Aung, K. T., & Ibrahim, A. F. (2016). *Breast Feeding Issue: A Study on Factors Affecting Termination of Breast feeding among Working Mothers International Journal of Health Sciences and*

*Research Breast Feeding Issue: A Study on Factors Affecting Termination of Breast feeding among Working Mothers. December.*

17. Sokan – AdeagaMicheal Ayodeji, S.-A. A. A. S.-A. E. D. (2014). A review on facilitators and barriers to exclusive breastfeeding in {West} {Africa}. *Journal of Biology, Agriculture and Healthcare*, 4(24), 9–15.
18. Thepha, T., Marais, D., Bell, J., &Muangpin, S. (2017). Facilitators and Barriers to Exclusive Breastfeeding in Thailand: A Narrative Review. *Journal of Community & Public Health Nursing*, 03(01), 1–9. <https://doi.org/10.4172/2471-9846.1000160>
19. Tang, K., Gerling, K., Chen, W., &Geurts, L. (2019). Information and communication systems to tackle barriers to breastfeeding: Systematic search and review. *Journal of Medical Internet Research*, 21(9), 1–15.
20. Khatun, H., Comins, C. A., Shah, R., Munirul Islam, M., Choudhury, N., & Ahmed, T. (2018). Uncovering the barriers to exclusive breastfeeding for mothers living in Dhaka’s slums: A mixed method study. *International Breastfeeding Journal*, 13(1), 1–11. <https://doi.org/10.1186/s13006-018-0186-5>
21. Sharma, I. K., & Byrne, A. (2016). Early initiation of breastfeeding: A systematic literature review of factors and barriers in South Asia. *International Breastfeeding Journal*, 11(1), 1–12. <https://doi.org/10.1186/s13006-016-0076-7>
22. Morlacchi, L., Mallardi, D., Gianni, M. L., Roggero, P., Amato, O., Piemontese, P., Consonni, D., &Mosca, F. (2016). Is targeted fortification of human breast milk an optimal nutrition strategy for preterm infants? An interventional study. *Journal of Translational Medicine*, 14(1), 1–8. <https://doi.org/10.1186/s12967-016-0957-y>
23. Rochow, N., Fusch, G., Zapanta, B., Ali, A., Barui, S., &Fusch, C. (2015). Target fortification of breast milk: How often should milk analysis be done? *Nutrients*, 7(4), 2297–2310. <https://doi.org/10.3390/nu7042297>
24. Choi, A., Fusch, G., Rochow, N., &Fusch, C. (2016). Target fortification of breast milk: Predicting the final osmolality of the feeds. *PLoS ONE*, 11(2), 1–12. <https://doi.org/10.1371/journal.pone.0148941>
25. Boquien, C. Y. (2018). Human milk: An ideal food for nutrition of preterm newborn. *Frontiers in Pediatrics*, 6, 1–16. <https://doi.org/10.3389/fped.2018.00295>
26. Wu, X., Jackson, R. T., Khan, S. A., Ahuja, J., &Pehrsson, P. R. (2018). Human Milk Nutrient Composition in the United States: Current Knowledge, Challenges, and Research Needs. *Current Developments in Nutrition*, 2(7), 1–18. <https://doi.org/10.1093/cdn/nzy025>
27. Sharma, I. K., & Byrne, A. (2016). Early initiation of breastfeeding: A systematic literature review of factors and barriers in South Asia. *International Breastfeeding Journal*, 11(1), 1–12. <https://doi.org/10.1186/s13006-016-0076-7>
28. Roy, S. K., Tasnim, S., Jahan, M. K., Nazmeen, S., Debnath, S. C., & Islam, A. B. . M. (2019). Difficulties in breastfeeding: Easy solution by Oketani breast massage. *Bangladesh Medical Research Council Bulletin*, 45(3), 149–154. <https://doi.org/10.3329/bmrcb.v45i3.44644>
29. Akter, S., Tasnim, S., Bhuiyan, M. M. A., & Hasan, A. (2016). A Study on post partum breast problems of mothers attending at lactation management center (LMC). *Bangladesh Medical Journal*, 44(3), 136–139. <https://doi.org/10.3329/bmj.v44i3.27372>
30. Khasawneh, W., &Khasawneh, A. A. (2017). Predictors and barriers to breastfeeding in north of Jordan: could we do better? *International Breastfeeding Journal*, 12(1), 1–7. <https://doi.org/10.1186/s13006-017-0140-y>
31. Thepha, Thiwawan, Debbie Marais, Jacqueline Bell, and SomjitMuangpin. 2017. “Facilitators and Barriers to Exclusive Breastfeeding in Thailand: A Narrative Review.” *Journal of Community & Public Health Nursing* 03(01):1–9.
32. Mohite, R. V., Kshirsagar, V. Y., & Mohite, V. R. (2018). Prevalence and determinants of cessation of exclusive breastfeeding among primi-para rural Indian mothers. *International Journal Of Community Medicine And Public Health*, 6(1), 314. <https://doi.org/10.18203/2394-6040.ijcmph20185265>
33. Motee, A., Ramasawmy, D., Pugo-Gunsam, P., &Jeewon, R. (2013). An assessment of the breastfeeding practices and infant feeding pattern among mothers in mauritius. *Journal of Nutrition and Metabolism*, 2013. <https://doi.org/10.1155/2013/243852>
34. Uchenna, O. (2012). Problems encountered by breastfeeding mothers in their practice of exclusive breast feeding in tertiary hospitals in Enugu State, South-east Nigeria. *International Journal of Nutrition and Metabolism*, 4(8), 107–113. <https://doi.org/10.5897/IJNAM11.057>
35. Zheng, T., Chen, W., Hu, H., Wang, Y., Harnett, J. E., & Lam Ung, C. O. (2020). The prevalence, perceptions and behaviors associated with traditional/complementary medicine use by breastfeeding women living in Macau: A cross-sectional survey study. *BMC Complementary Medicine and Therapies*, 20(1), 1–11. <https://doi.org/10.1186/s12906-020-02921-8>
36. Suresh, S., Sharma, K. K., Saksena, M., Thukral, A., Agarwal, R., &Vatsa, M. (2014). Predictors of breastfeeding problems in the first postnatal week and its effect on exclusive breastfeeding rate at six

- months: experience in a tertiary care centre in Northern India. *Indian Journal of Public Health*, 58(4), 270–273. <https://doi.org/10.4103/0019-557X.146292>
37. Sokan – AdeagaMicheal Ayodeji, S.-A. A. A. S.-A. E. D. (2014). A review on facilitators and barriers to exclusive breastfeeding in {West} {Africa}. *Journal of Biology, Agriculture and Healthcare*, 4(24), 9–15.
  38. Kavle, J. A., Lacroix, E., Dau, H., & Engmann, C. (2017). Addressing barriers to exclusive breast-feeding in low- and middle-income countries: A systematic review and programmatic implications. *Public Health Nutrition*, 20(17), 3120–3134. <https://doi.org/10.1017/S1368980017002531>
  39. Nabulsi, M., Tamim, H., Shamsedine, L., Charafeddine, L., Yehya, N., Kabakian-Khasholian, T., Masri, S., Nasser, F., Ayash, S., & Ghanem, D. (2019). A multi-component intervention to support breastfeeding in Lebanon: A randomized clinical trial. *PLoS ONE*, 14(6), 1–14. <https://doi.org/10.1371/journal.pone.0218467>
  40. Februhartanty, J., Bardosono, S., & Septiari, A. M. (2006). Problems During Lactation are Associated with Exclusive Breastfeeding in DKI Jakarta Province: Father's Potential Roles in Helping to Manage These Problems. *Mal J Nutr*, 12(2), 167–180. [http://nutriweb.org.my/publications/mjn0012\\_2/mjn12n2\\_art4.pdf](http://nutriweb.org.my/publications/mjn0012_2/mjn12n2_art4.pdf)
  41. McFadden, A., Siebelt, L., Marshall, J. L., Gavine, A., Girard, L. C., Symon, A., & MacGillivray, S. (2019). Counselling interventions to enable women to initiate and continue breastfeeding: A systematic review and meta-analysis. *International Breastfeeding Journal*, 14(1), 1–19. <https://doi.org/10.1186/s13006-019-0235-8>
  42. Laroia, N., & Sharma, D. (2006). The religious and cultural bases for breastfeeding practices among the Hindus. *Breastfeeding Medicine : The Official Journal of the Academy of Breastfeeding Medicine*, 1(2), 94–98. <https://doi.org/10.1089/bfm.2006.1.94>
  43. Karaçam, Z., & Sağlık, M. (2018). Breastfeeding problems and interventions performed on problems: Systematic review based on studies made in Turkey. *Turk PediatriArsivi*, 53(3), 134–148. <https://doi.org/10.5152/TurkPediatriArs.2018.6350>
  44. Paulaviciene, I. J., Liubsys, A., Molyte, A., Eidukaite, A., & Usonis, V. (2020). Circadian changes in the composition of human milk macronutrients depending on pregnancy duration: A cross-sectional study. *International Breastfeeding Journal*, 15(1), 1–9. <https://doi.org/10.1186/s13006-020-00291-y>
  45. Piro, S. S., & Ahmed, H. M. (2020). Impacts of antenatal nursing interventions on mothers' breastfeeding self-efficacy: An experimental study. *BMC Pregnancy and Childbirth*, 20(1), 1–12. <https://doi.org/10.1186/s12884-019-2701-0>
  46. Imdad, A., Yakoob, M. Y., & Bhutta, Z. A. (2011). Effect of breastfeeding promotion interventions on breastfeeding rates, with special focus on developing countries. *BMC Public Health*, 11(SUPPL. 3), S24. <https://doi.org/10.1186/1471-2458-11-S3-S24>
  47. Jama, N. A., Wilford, A., Masango, Z., Haskins, L., Coutsoudis, A., Spies, L., & Horwood, C. (2017). Enablers and barriers to success among mothers planning to exclusively breastfeed for six months: A qualitative prospective cohort study in KwaZulu-Natal, South Africa. *International Breastfeeding Journal*, 12(1), 1–13. <https://doi.org/10.1186/s13006-017-0135-8>
  48. Lauer, E. A., Armenti, K., Henning, M., & Sirois, L. (2019). Identifying barriers and supports to breastfeeding in the workplace experienced by mothers in the New Hampshire special supplemental nutrition program for women, infants, and children utilizing the total worker health framework. *International Journal of Environmental Research and Public Health*, 16(4), 8–10. <https://doi.org/10.3390/ijerph16040529>
  49. Patel, D. V., Bansal, S. C., Nimbalkar, A. S., Phatak, A. G., Nimbalkar, S. M., & Desai, R. G. (2015). and Their Association with Morbidities in Children. *Advances in Preventive Medicine*, 2015, 1–9. <https://doi.org/10.1155/2015/892825>
  50. Giugliani, E. R. J. (2004). Common problems during lactation and their management. *Jornal de Pediatria*, 80(8), 147–154. <https://doi.org/10.2223/jped.1248>