

Benefits of Breastfeeding on Child and Postpartum Psychological Health of the Mother

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ABSTRACT

Aim: The aim of this study was to summarize different types of benefits that have been observed in the baby's development and the mother's psychological health during the postpartum period.

Background: Breastfeeding is a natural process that plays a vital role in the physical as well as mental health of the mother and child. Breast milk is rich in contents such as proteins, fats, and vitamins, which are responsible for building the immune system of the baby. Lactation helps in decreasing the prevalence of infant mortality rate. It enhances the development of the physical health of the children. Breastfeeding protects the mother from many systemic conditions like endometrial cancer, ovarian cancer, breast cancer, etc. It has been observed that with an increase in healthy breastfeeding practices, there is a decline in the cases of maternal mental health issues reported mainly in the postpartum period.

Review result: The authors have explained various types of advantages of breastfeeding on the child's and mother's health, their mechanism of action, effects on the baby, and mother-child relationship.

Conclusion: The mother's mental health plays a crucial role in a healthy infant, and breastfeeding is key to it. The role of breastfeeding is therefore considered a boon for the mother because if there is a decrease in health issues in the child, the mother's mental condition improves automatically. Therefore, breastfeeding should be promoted at the national level.

Clinical significance: Breastfeeding not only helps in reducing maternal stress and postpartum depression but also improves the physical health of the child and mother during the postpartum period. The clinicians should teach mothers about the importance and also the correct positions of breastfeeding. "Breastfeeding week" is celebrated every year from August 1 to August 7, as implemented by the Indian government.

Keywords: Alzheimer's disease, Breastfeeding, Exclusive breastfeeding, Lactational amenorrhea, Maternal stress, Postpartum depression.

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BACKGROUND

Lactation is a process that is specifically a feature of all the mammalian species.¹ The evolutionary forces have shaped the system from the ancient era till now of nutrient delivery in such a way that all the essential nutrients in their specified amount are delivered from the mother to child.² There is no doubt in accepting that the standard gold resource of food for the baby in the initial 6 months of their life is the milk that they can get from the mother. Various public well-being agencies such as the "World Health Organization" and "The American Academy of Pediatrics" have suggested that there should be a minimum of 6 months of absolute breastfeeding, which means that newborns should be given only breast milk as a primary and only source of nourishment.³ Human milk is distinctively suited to the newborn in both ways, such as nutrition factors and non-nutrition factors, which enhance the mental as well as physical development of the child and therefore the mother's mental health is also get influenced by it.⁴ The human milk's nutritional quality is grossly reserved, but it varies with the mother's diet. Therefore, the maternal diet is vital for good quality human milk. This process improves the mother's quality of living, which automatically affects mental health.

There are two components of human milk: macronutrients and micronutrients.

Macronutrients

The composition of macronutrients in milk differs from mother to mother and during different phases of lactation, which is considered normal. In total, the amount of energy we get from the combination

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of macronutrients is 65–70 kcal/dL. As it is mentioned above, the composition of macronutrients varies within the lactation cycle; there is a difference in composition in preterm baby and term baby milk as the former has a higher content of proteins and fats. Based on some studies, lactose is present in higher amounts in human milk.⁵ Therefore, for managing high-risk neonates, we need to keep in mind the composition of milk contents and the pace at which the neonate grows for the proper treatment.⁶

Micronutrients

The constitution of micronutrients in breast milk differs according to various factors such as the diet taken by the mother and the body stores of the mother, which contains "vitamins A, B1, B2,

Table 1: Difference between human milk and cow milk

	<i>Human milk</i>	<i>Cow milk</i>
Protein	Whey protein is predominant	Casein protein is predominant
Vitamin	Vitamins K, D, and B12 are deficient	Vitamins A and C are deficient
Fat	PUFA and lipase are present	PUFA and lipase are lesser amount
Carbohydrates	Lactose in abundant amount	Lactose in lesser amount
Immunoglobulin	IgA and lactoferrin present	No Ig is present
Water	Enough amount as per the requirement	Less amount, needed extra from outside

IgA, immunoglobulin A; Ig, immunoglobulin; PUFA, polyunsaturated fatty acid

B6, B12, D, and iodine.” The diet which the mother takes may be a deficit in many ways. Hence, it has to be supplemented with various multivitamins during lactation.⁷ Irrespective of the content of food taken by the mother, it will always be a deficit in vitamin K. Therefore, “The American Academy of Pediatrics” suggests that to prevent diseases like bleeding disorders, an injection of vitamin K should be supplemented to the neonates. Another micronutrient present in fewer amounts is vitamin D.⁸ If the mother cannot feed the child or if the amount of breastmilk is insufficient for the child, then she adds top feeds to it, which contain formula milk or cow milk. Even though it is a good alternative to breast milk, but it should not be promoted because due to this breastfeeding will be practiced less therefore mother’s mental health suffers and also the child’s development. If we compare the difference between cow’s and mother’s milk, some points favor cow’s milk and some mother’s milk. The differences are mentioned in [Table 1](#).⁹

Review Result

The researchers have found a relation between breastfeeding and the health of the child and mother. As the child grows, his/her mental ability and physical health depend upon the nutrition which he/she gets during the infancy period. Long-term diseases like diabetes mellitus type 2, hypertension, weight gain, and hypercholesterolemia are found to be decreased in exclusively breastfed child. On the other hand, in breastfeeding mother during the postpartum period, there are less chances of the mother to suffer from the following disorders:

- Disturbance in the mood of mother
- Postpartum depression
- Mother–child relationship
- Maternal stress
- Alzheimer’s disease

The disturbance in the mood of mother are imperative because if the mother is not mentally healthy, she will not be able to take care of her child. The pandemic COVID-19 has positive and negative impacts on mother’s psychological health. Job-going mothers had the opportunity to spend time with their children and also be able to feed them. Therefore, the mother’s mental health plays a crucial role in a healthy infant, and breastfeeding is the only source.

DISCUSSION

Positive Effects on the Baby

We have found from various studies that mother’s milk not only provides nutrition to the child but also supports the physical and mental health of the child and the mother. There are short- and long-term benefits associated with breastfeeding. Also, the benefits may differ with the duration of breastfeeding, and the amount of milk

that is fed by the mother. The combined effect of these two factors will give the outcome. According to a review that was done 6 years back, it was found that there was a significant impact of “exclusive breastfeeding” during the first 6 months of feeding in the life of infants. It is also stated that breastfeeding protects against many infectious diseases, which can even cost the life of infants compared to those whom the mother has not fed.¹⁰ A study was conducted among high- and low-income countries, revealing a higher death rate among infants among those who have not been breastfed. Among these, the deaths are more common among males and females under 6 months of age compared to the other age-groups.¹¹ The effect of breast milk, which the mother feeds to the baby, has significantly lowered the rate of neonatal deaths as compared to those who have not been breastfeeding sufficiently.¹²

Out of many studies that are going on have pointed that there is a significant role of breastfeeding in preventing the risk of disorders like diarrheal infection, respiratory infections, and mental disorders. All these infants who have not been breastfed are more susceptible to developing diarrheal illnesses in their first 5 years of childhood, and the number of hospitalizations can be reduced just because of a healthy move that is “exclusive breastfeeding.”¹³

As far as the long-term benefits are concerned, many studies have shown a significant relationship between breastfeeding and diabetes mellitus type 2. It is found that breastfed babies are at less risk of developing diabetes mellitus type 2 than those who are not appropriately breastfed. Other conditions like weight gain, hypertension, and hypercholesterolemia are also being studied to establish a link between them and breastfeeding.¹⁴ It is also discovered that children who are “exclusively breastfed” have a notably higher “Intelligence Quotient.” Thus, breastfeeding plays a remarkable role in the physical as well as mental development of the infant.¹⁵

Positive Effect on the Psychological Health of the Mother

The relationship between a mother’s health and breastfeeding has been found due to various research conducted across the countries. Some researchers have observed that there is an essential role of breastfeeding in the health of premenopausal and postmenopausal women. As we know that breast cancer is an emerging issue in developing countries, the practice of breastfeeding significantly impacts it. The studies revealed that the “dose–response effect” is essential in protecting against cancer. The longer the mother feeds, the more protective the effect of breastfeeding against breast cancer. A detailed review has been carried out in more than 30 countries, and the results that the percentage of breast cancer has been reduced by a significant amount. A survey that was conducted has shown that the changes in the concentration of hormones that occur due to breastfeeding are found to help regain the strength of

the mother after the process of childbirth. Also, it reduces maternal fertility during the period of breastfeeding. Thus, breastfeeding acts as a natural contraceptive since it causes amenorrhea, i.e., lactational amenorrhea for a few months. This type of contraceptive method is also helpful for spacing between deliveries. The intensity of all these changes depends upon the “duration, amount, and frequency of breastfeeding.” Another common cancer among many females is ovarian cancer, which has been increasingly a cause of concern. It can be prevented by teaching breastfeeding practices since it is considered protective against ovarian cancer.¹⁶ According to many studies, women tend to lose weight significantly during the postpartum period, which may be due to increased calorie demand during the process of lactation. According to some, it has been indicated that there is a crucial link between breastfeeding and endometrial carcinomas, in which breastfeeding plays a role in protecting cancer.¹⁷ The role of breastfeeding is significantly seen in the mother’s mental health and the bonding between the mother and child. The issue of the mental health of the mother is rising day by day because of various factors like family pressure, anxiety, changes in the body, insecurities, etc. So, it is very important to study in brief about effects of breastfeeding on different aspects of the psychological health of a mother.

Mood and Affect of the Mother

Studies have shown that lactation has a powerful impact on mood and state of mind to react to stressful conditions in the mother. Diseases like anxiety, negative thoughts, depression, and stress have been significantly decreasing in lactating mothers as compared to those who are using formula milk.¹⁸ All these findings are indeed based on reviews that are gathered from person to person, but they are also confirmed by proper studies which were conducted to find the positive outcome of lactating mothers on their psychological health. Usually, during the lactation phase, the mother has strong “cardiac vagal tone modulation,” a decrease in BP, and decreased heart activity compared to formula milk-feeding mothers, who have a higher incidence of stress and anxiety state of mind. This indicates that the lactation mother should have a more calm and nonstressful state of mind which in return increases positive thoughts and better psychological health.¹⁹

Attachment between the Mother and Infant

It has been observed over a decade that feeding the child creates invisible energy which emotionally connects the child to the mother. Therefore, research has been conducted to prove this observation correct, and it shows that when the mother feeds the child, she touches her child more frequently and responsibly. She gradually tends to spend more time taking care of the baby. “Brain imaging work” gives us proof of the relationship between lactating mother and her child in a positive aspect, for example, the magnetic resonance imaging of the brain shows that, in particular, “the limbic area of the brain” is more activated during lactation when the mother hears her baby cries as compared to those who do not feed their child on their own instead using formula milk.²⁰ Studies have shown that the level of oxytocin during the period of pregnancy and after delivery is responsible for bonding between the mother and her child through her behavior such as eye contact, vocalization, touch, and many more related things.²¹ Due to this, stress, anxiety, and other mental problems are seen to be decreased in these women. One study is performed in which two groups are made: one is of those mothers who breastfed their baby for one week continuously, and another of mothers who did not breastfeed their baby. The result shows that

mothers who breastfeed have more bonding and affection with their babies as compared to those who do not breastfeed. All these findings indicate positive outcomes in association with the mother and child relations as lactating mothers are seen with more positive, happy moods, and nonanxious behavior.²²

On Postpartum Depression

There are some articles that indicate the reduced prevalence of postpartum depression in lactating mothers.²³ In an observational study that was conducted, the lactating mother had fewer scores on the scale of Edinburgh postnatal depression scale (EPDS) during the postpartum period.²⁴ Also, there is a significantly less percentage of these mothers to be diagnosed with postpartum depression. During the study, an unexpected thing was observed an increase in the prevalence of depression is seen more within the first 2 months of the postpartum period. Still, due to lactation, the number of cases decreased drastically. According to a study, mothers have been divided into two groups: successful breastfeeding and unsuccessful breastfeeding. The mothers are of different categories, for example, homemakers, teachers, and working in a company. The result of the study tells us that 30% of total mothers are suffering from some mental health conditions, and others are entirely healthy. Among this 30% who are unhealthy, a significant portion is those who fail to feed their child. Hence, postpartum depression is correlated to breastfeeding.

During COVID-19 Pandemic

The global crisis created by the outbreak of COVID-19 has impacted mothers’ mental health in positive as well as negative aspects. We already know that COVID-19 is a respiratory tract infection that is transmitted by the droplet route of spread in close contact with the person who is infected.²⁵ Therefore, if the mother is infected by COVID-19, she will not be able to feed her child as she will think the child may get the infection from her.²⁶ These incidences have been seen increasing after the pandemic, which gradually affects the mother’s mental health. Mother–baby separation is a problem that comes into notice when all cured patients are quarantined for 14 days to monitor their health and any after-COVID symptoms.²⁷ The studies found that even after the end of 14 days of the quarantine period, more than half of mothers continued to stay away from their babies due to the fear of infection; therefore, decreased breastfeeding practice in the early months is seen. Not only there is the cessation of breastfeeding, preliminary separation of the mother and their baby has also connected to negative effects on babies’ brain development as well as the mother’s psychological well-being and the mother–baby relationship.²⁸ The cases of depression and anxiety are reported more in COVID-infected mothers, which also has influenced the bond between the mother and her child.²⁹ A global survey of postpartum women found that 40% of women screened positive for post-traumatic stress disorder; over 70% of women also reported clinically significant depression or anxiety. Some women had experienced loneliness in the labor room as well as in postnatal wards because the hospitals had implemented restrictive measures to prevent COVID-19 transmission.³⁰ On the contrary, a positive impact has been seen on the mothers who are not able to feed their children because of their jobs, but the “pandemic lockdown” has given them the chance to provide for their children and improve their mental and physical health.³¹

Alzheimer’s Disease

The studies are done with elderly females regarding the occurrence of dementia, which shows that the number of cases of Alzheimer’s

disease decreases in those females who breastfed their babies in comparison to those who did not perform breastfeeding. The reason behind this result is due to the impact of hormones like estrogen on the receptors which are present in the brain. Also, due to breastfeeding, insulin sensitivity is provoked, by which maternal levels are within normal limits and reduces the chance of Alzheimer's disease.³²

Maternal Stress

The motherhood phase for women after the birth of a child is new; in that phase, she experiences a lot of things that she has not experienced later in life. This change as a new parent makes mothers more stressed. Under these stressful challenges, some of the mothers are able to survive positively with challenges and some are unable to adapt positively.³³ The stressful situation varies from being able to be an excellent mother to decreased sleep levels, changes in body structure, and many more. They try to find time for their partner, elder child, and family members while taking care of the newborn, which makes their routine stressful and hence neglects their own health. Due to all these things, it has been observed that cases of depression in mothers during the first year of childbirth are increasing. Many studies were done, and some are going on regarding the association between breastfeeding and reduced stress in mothers revealed that the mothers who are breastfeeding their babies have decreased amount of hormonal stress response during stressful situations as compared to those who do not breastfeed or those who do not have a child.³⁴ As we are known to the fact that women have more amount of plasma oxytocin and prolactin during the first few months after the delivery of a child due to breastfeeding. On the contrary, women who do not breastfeed their baby for any reason have a comparatively lower level of these hormones, due to which anxiety cases are seen more in these women. During the lactation reflex, when the baby sucks the nipples of the mother, a hormone named cortisol is released, which is responsible for decreasing stress levels as compared to those who do not do it.

CONCLUSION

Lactation is a significant reference point for the mental health of a mother. The role of breastfeeding on the mother's brain has been proven by magnetic resonance imaging during research, showing an enhancement in the activity of the brain and the "limbic system." Due to this, there is an increase in attachment between the child and mother, hence improving their bond in comparison to those mothers who fail to lactate their children. The role of "exclusive breastfeeding" is therefore considered a boon for the mother and child because of decreased health issues in the child, and if the child is healthy, the mother's mental condition improves automatically. Hence, it will have a positive impact on the family, too, as the family is concerned about both the mother and child. For a mother, the postpartum period is of great importance, as during this period mother's mental and physical health, which is compromised during pregnancy, is returning to normal. If, during this period, the mother fails to feed her child, it will impact her psychological health, which will cause postpartum depression. Also, COVID-19 has positive as well as negative effects on a mother's mental health. Those who get infected are not able to feed their child and suffer from anxiety and depression, but working mothers have an opportunity to feed their children and make a bond. Hence, breastfeeding plays an important role in improving the mental health of the mother.

Clinical Significance

Studies have shown that breastfeeding is a boon for the mother and her child in the aspect of physical and mental health. The topic of mental health especially in postpartum females is usually neglected due to which postpartum blues are like to be converted into postpartum psychosis. Therefore, the clinician should counsel the female to breastfeed their child in order to prevent complications in both mother and child.

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