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The Impact of Breastfeeding on Mental Disorders in Children and Adults and the Role of Mother's Mental Health: A Literature Review

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ABSTRACT

Background. Beyond providing nutrition to infants, breastfeeding plays a significant role in their physical, cognitive, and emotional development. An icreasing number of studies indicate that it may affect the child's mental health later in life through various mechanisms. The mental state of the mother can modify lactation and breast milk composition, potentially impacting infant development.

Aim of the study. A review of literature on the impact of breastfeeding during infancy on mental disorders, including depression, anxiety disorders, autism spectrum disorders, and personality disorders, in childhood and adulthood, considering the mother's mental health as a potential modulating factor.

Methodology. The review was conducted using PubMed and Google Scholar. Studies from 1998-2025 were analyzed.

Results. Studies show breastfeeding supports cognitive development, reduces risk of mental disorders and promotes resilience to psychosocial stress. The mother's mental state and treatment may affect lactation and breast milk composition, influencing infant development.

Conclusion: Breastfeeding may protect aspects of a child's mental health and cognitive development long-term. The mother's mental health influences breast milk composition and

breastfeeding quality. Research remains inconclusive due to environmental and genetic factors, requiring more studies on breastfeeding's effects on cognition and mental health.
Keywords: breastfeeding, depression, autism, anxiety disorders, cognitive development, maternal mental health

1. Introduction

Breastfeeding is not only the primary form of infant nutrition, but also an important factor influencing their physical, cognitive, and emotional development. Numerous studies indicate that the short-term benefits of breastfeeding include strengthening the immune system, reducing the risk of infections, and better weight gain. However, evidence from the literature suggests that these benefits are not limited to early childhood but may have long-term consequences. Prolonged breastfeeding is associated with a lower risk of developing obesity and type 2 diabetes (T2D) later in life, as well as better performance on cognitive tests. The mechanisms underlying these effects include both psychosocial and biological factors. Breastfeeding can support the development of the mother-child bond, protect against neglect, and foster the formation of a healthy personality. At the same time, breast milk provides essential nutrients that are key for the development of cognitive, language, and neurological functions.

Breastfeeding, and especially exclusive breastfeeding during infancy, is among the most thoroughly studied factors influencing a child's development, with numerous studies indicating its beneficial neuropsychological effects. Many researchers emphasize that breastfeeding has a significant, long-term impact on cognitive development, behavior, and the mental health of both the child and the mother. Therefore, breastfeeding can be viewed as a complex biological and psychological process that also holds significant social importance.

The etiology of mental disorders includes genetic, epigenetic, and environmental factors, such as parenting style and the bond with the primary caregiver that develops in early childhood, making this period crucial for a child's emotional and cognitive development. Breastfeeding plays an important role here, supporting mother-child interaction and indirectly influencing mental development and emotional health.

In light of the above, breastfeeding constitutes a key element of both the physical and mental health of the child, and its impact includes both early and long-term effects. The aim of this paper was to review the currently available literature concerning the influence of breastfeeding

during infancy on the occurrence of mental disorders - among them, major depressive disorder (MD), anxiety disorders, autism spectrum disorders (ASD), and personality disorders in children and adults - taking into account the role of maternal mental health and pharmacotherapy as potential factors modulating these relationships.

2. Methodology

A literature search was conducted in electronic databases such as PubMed and Google Scholar. The search focused on keywords including “breastfeeding”, “human milk”, “maternal mental health”, “postpartum depression”, “psychotropic drugs”, “child mental health”, “neurodevelopment”. The search included publications published between 1998 and 2025. In addition, the bibliographies of selected articles were analyzed to identify further relevant studies.

2.1 Inclusion criteria

The following criteria were used for the inclusion of sources to ensure a high-quality and relevant literature base:

- Study design: systematic reviews, meta-analyses, and large-scale cohort studies. The studies focused on: the impact of breastfeeding on the mental health of children or adults, the relationship between the mother’s mental state and lactation or the composition of human milk, the use of psychotropic medications during breastfeeding and their potential exposure in infants
- Only articles published in reputable, peer-reviewed scientific journals were included to ensure high quality and reliability of the studies. This criterion was crucial for maintaining the scientific integrity of the review.
- The timeframe was limited to publications from 1998-2025. This ensured that the review was based on the latest and most up-to-date research findings, reflecting the state of knowledge in the chosen field. Both outcomes concerning children and their mother were included.

2.2 Exclusion criteria

Exclusion criteria primarily targeted studies not directly related to the subject of breastfeeding, maternal mental health, or mental disorders in offspring.

2.3 Data extraction and synthesis

Key information was extracted from the selected publications, including: type of study, sample size, participant characteristics, analyzed variables (e.g., duration of breastfeeding, mother's mental health, pharmacotherapy used), main research findings, and conclusions regarding the impact of breastfeeding and psychological factors on the health of the mother and child.

The data obtained was analyzed descriptively (narrative synthesis). The study results were grouped thematically into several areas:

- The impact of breastfeeding on the mental health of children and adults,
- The relationship between the mother's mental state and the course of lactation,
- The influence of psychological factors on the composition and quality of human milk,
- The safety of using psychotropic medications during breastfeeding.

This approach enabled a comprehensive analysis of the current state of knowledge and the identification of areas requiring further research.

3. The impact of breastfeeding on brain development and cognitive function in children

Breastfeeding, in addition to its well-documented positive effects on a child's physical health, is also associated with better neurodevelopmental outcomes [1, 2, 3].

A meta-analysis showed that breastfeeding is associated with a higher level of cognitive development (on average about 3.16 intelligence quotient (IQ) points) compared to formula feeding, and this effect can persist from infancy through adolescence. Longer duration of breastfeeding further enhances the observed benefits, with greater effects noted in children with low birth weight. It is therefore suggested that components of breast milk may play a significant role in neurological development [4]. In other studies conducted in a population of children born with very low birth weight, it was shown that longer feeding was associated with higher IQ scores at the age of 7-8 years, particularly in the area of verbal abilities. After accounting for confounding factors, this effect was weakened, but it still remained significant for verbal IQ [5]. Similar relationships were observed in longitudinal studies conducted in New Zealand, which showed that a longer duration of breastfeeding in the first year of life is associated with higher levels of cognitive abilities and better academic achievement between the ages of 8 and 18. After accounting for environmental factors, this relationship weakens somewhat but remains significant, indicating a small yet lasting impact of breastfeeding on cognitive development [6]. Breastfeeding is also associated with a slight improvement in certain cognitive

functions, especially memory and language development, particularly in early childhood. This effect is stronger with longer and more intensive breastfeeding, however, it does not apply to all areas of development and does not always persist over time [7]. In school age and adolescence, this influence may be less noticeable, particularly in the area of executive functions [8].

There is also evidence suggesting that breastfeeding may reduce the risk of behavioral problems in children [9]. At the same time, it should be emphasized that cognitive development is strongly determined by environmental and genetic factors, which may partially explain the observed correlations [7].

Additionally, neuroimaging studies indicate differences in brain structure and function in children who are breastfed. Among preterm infants, greater gray matter volume has been observed in the frontal and temporal lobes, as well as higher activity in specific brain regions, which may suggest more advanced neurobiological development. However, due to methodological limitations, further research is necessary to confirm these observations [10].

It is worth noting that nutritional factors during the prenatal period can also influence a child's development. A prospective cohort study demonstrated that a Western dietary pattern during pregnancy is associated with poorer cognitive development and slower growth of the child’s head circumference, whereas longer breastfeeding and a more varied maternal diet during this period are conducive to more favorable child development, resulting in better cognitive functions in later life [3].

4. The impact of breastfeeding on the occurrence of depression, anxiety, and other mental disorders in children and adults

It is widely recognized that factors acting during the early stages of life can play a significant role in a child's development and may affect their functioning in later years, including adulthood. It has been demonstrated that children and adults who were not breastfed during infancy, or whose breastfeeding period was relatively short, have a higher risk of developing MDD, anxiety, and other mental disorders compared to those who were breastfed, as we will discuss below [11, 12]. The study, which identified maternal tobacco smoking during the perinatal period as a significant risk factor for the development of attention deficit hyperactivity disorder (ADHD), MDD, bipolar disorder (BD), and anxiety disorders, demonstrated a protective effect of

breastfeeding during infancy against these disorders [13]. Another study confirmed the link between longer periods of breastfeeding and a lower risk of developing mental disorders such as MDD, generalized anxiety disorder (GAD), or social anxiety disorder (SAD). However, these results were very close to the threshold of statistical significance, so their randomness cannot be ruled out. On the other hand, it was found with high confidence that people who were breastfed for 6 months or longer exhibited severe depressive symptoms less frequently [14]. The studies included in the meta-analysis published in 2023 did not confirm a significant association between breastfeeding and the risk of developing schizophrenia later in life [15]. However, one study found a 1.7-fold higher risk of schizophrenia in children of mothers who did not breastfeed or stopped breastfeeding within 2 weeks of childbirth, compared to children of mothers who breastfed for a longer period [16]. With regard to depressive disorders and anxiety disorders, the results have been inconclusive - only some studies indicated a slight protective effect of breastfeeding. However, the certainty of evidence from these studies was rated as very low, which suggests the need for further research into the validity of this claim [15]. Another study confirmed that children who were breastfed for at least 4 months showed lower levels of anxiety and depressive symptoms, and additionally demonstrated that they were less likely to experience difficulties in social functioning, problems with attention, and aggression at age 14. The results were found to vary depending on gender. Boys were more likely to display social problems and attention difficulties, while girls were more often affected by anxiety-depressive symptoms, a tendency to withdraw, somatic complaints, and difficulties related to thought processes [17]. In this and several other studies, some of the observed relationships may be affected by factors such as the mother's mental health or her use of psychoactive substances during pregnancy; however, this does not impact the significance of the research findings [17, 18]. In our search for further explanations, we came across two studies. One indicated that breastfeeding for less than 6 months, compared to a period of at least 6 months, was an independent predictive factor for the occurrence of mental health problems in both childhood and adolescence [19]. The second study confirmed an independent association between a shorter duration of exclusive breastfeeding and a longer duration of bottle feeding with the occurrence of anxiety disorders in children [20].

The impact of breastfeeding on resistance to psychosocial stress was also examined. The analysis showed that divorce or separation of parents was associated with higher levels of anxiety in children who were not breastfed compared to those who were, suggesting that

breastfeeding may serve as a protective factor, increasing children's resilience to stress related to family relationship difficulties [21].

Interestingly, for the first time, a connection has also been described between vaginismus - a psychogenic disorder characterized by painful spasms of the pelvic floor making vaginal penetration difficult - and the duration of breastfeeding, showing that a higher frequency of vaginismus occurs in women who were breastfed for a shorter period. It has been suggested that this may be partly related to the occurrence of anxiety and depressive disorders, which, according to previously described studies, are significantly more common in patients with vaginismus [12].

Moreover, no significant association has been found between the duration of breastfeeding and the risk of developing eating disorders in children, except for the observation that a longer breastfeeding period may be linked to a lower frequency of bulimic behaviors in boys. However, it should be noted that the number of studies directly assessing the impact of breastfeeding on the development of eating disorders in children is very limited; most analyses focus instead on behaviors and dietary patterns considered as indirect indicators of the development of such disorders. Therefore, it is not possible to unequivocally rule out the potential impact of breastfeeding on the occurrence of eating disorders [22].

5. The impact of breastfeeding on the occurrence of personality disorders

Borderline Personality Disorder (BPD) is characterized by intense yet unstable interpersonal relationships, which may result from attachment disturbances developed in early childhood. Research suggests that the quality of the mother-child relationship can be shaped by the method of feeding. Consequently, bottle-feeding instead of breastfeeding, as well as limited early bonding interactions, may increase the risk of later psychopathological disorders and difficulties in forming interpersonal bonds typical of BPD, as confirmed by a 2015 study. The lack of breastfeeding was found to be a significant, independent risk factor for a BPD diagnosis [23]. Another study also confirmed an increased likelihood of BPD in women who were never breastfed [15]. It has also been shown that breastfeeding in infancy leads to lower levels of traits associated with negative emotionality in adulthood, including neuroticism, anxiety, and hostility, and higher levels of openness and optimism [24].

6. The impact of breastfeeding on the occurrence of autism spectrum disorder in children

Recent studies suggest that infant feeding methods, especially the duration of breastfeeding, can significantly affect the risk of developing ASD [25]. There is growing evidence that, in addition to genetic factors, environmental elements such as breastfeeding - its frequency, duration, and optimality - may be potential risk factors for ASD [26].

The first meta-analysis based on epidemiological studies examining the relationship between not breastfeeding and the risk of ASD found a correlation between the intake of polyunsaturated omega-3 and omega-6 fatty acids (PUFAs) present in breast milk and the risk of developing ASD. Insufficient maternal intake of PUFAs during pregnancy or lactation may increase this risk. Breast milk, especially colostrum secreted in the first 2-3 days after birth, is a rich source of PUFAs that support the child's cognitive, social, and language development [27]. In a study analyzing medical records related to pediatric care visits, it was shown that infants who were later diagnosed with ASD were breastfed on average 1.5 months shorter than neurotypical children and were less likely to be exclusively breastfed during the first year of life. Furthermore, a shorter breastfeeding duration was more frequently observed in families with lower socioeconomic status. This highlights the importance of monitoring breastfeeding issues as a potential early indicator of ASD, especially in such families [28]. Another study showed that behaviors similar to autistic traits were observed less frequently in infants who were exclusively breastfed up to the age of 4 months than in those who were not exclusively fed breast milk. The analysis also found that women who gave birth by cesarean section were more likely to stop exclusive breastfeeding, and it was in their children that behaviors resembling ASD were observed more often [29]. Another study also showed that infants who were breastfed for a shorter period were more frequently diagnosed with ASD. Additionally, the likelihood of an ASD diagnosis decreased in a dose-dependent manner - partial breastfeeding was associated with about half the probability of ASD, while exclusive breastfeeding was linked to approximately four times lower probability of ASD. Furthermore, it was demonstrated that breastfeeding for longer than 12 months was also associated with a lower likelihood of ASD, while breastfeeding for 6-12 months did not have a clear impact on the diagnosis [30].

Studies show that oxytocin pharmacotherapy stimulates the endogenous oxytocinergic system in children with ASD. Higher levels of endogenous oxytocin are associated with a more favorable clinical profile in patients, due to its role in promoting social safety, building

interpersonal bonds, and reducing anxiety [31]. An increase in the child's oxytocin levels occurs during breastfeeding, which may confirm the protective effect of breastfeeding against the development of ASD [27]. Children with ASD who were breastfed demonstrate better daily living skills and a tendency toward better communication skills compared to children who were not breastfed. It has been shown that simply initiating breastfeeding is associated with a higher level of daily living skills, but the results obtained did not confirm a protective effect of breastfeeding on the IQ in children with ASD. It has been proven that the duration and intensity of breastfeeding are not significantly associated with the severity of clinical symptoms of ASD [32].

7. Maternal mental health and the nutritional quality and composition of milk

Apart from changes resulting from the stage of lactation, growing evidence indicates that the mother's mental state may also affect the composition of human milk, modulating the content of many of its components [33].

The mother's mental state, including stress, anxiety, and depression, can negatively affect the course of lactation and breastfeeding outcomes, particularly by shortening the duration of exclusive breastfeeding and making it more difficult to maintain. The mechanisms behind this influence are both physiological (e.g., disturbances in oxytocin secretion, increased cortisol) and behavioral. At the same time, this relationship is bidirectional - breastfeeding can have a protective effect on the mother's mental health, among other things through the action of oxytocin and reward mechanisms [34]. The mother's mental state can also affect the composition of breast milk, including the oligosaccharide profile. Research findings suggest that symptoms of depression, anxiety, and stress are associated with changes in the concentration and diversity of certain oligosaccharides, which may potentially influence the development of the infant's gut microbiota and immune system. Further research is needed to more precisely determine the impact of psychological factors on the composition of breast milk and their long-term consequences for the health of the offspring [35]. The study results indicate that both the level of the mother's psychosocial stress and her physiological response to stress, including cortisol levels, are significantly associated with the composition of human milk [36, 37]. It has been observed that higher stress reactivity may be associated with increased fat content and long-chain fatty acids, while simultaneously reducing lactose concentration. In contrast, chronic stress may have a different effect, leading to a deterioration in the nutritional quality of milk, including a reduction in its energy value and the content of certain lipids [37].

An important aspect of women's mental health during lactation is also the necessity of using pharmacotherapy for mental disorders and its potential impact on breastfeeding and the infant's exposure to medications. Research on infants has shown that exposure to atypical antipsychotic drugs during breastfeeding is associated with a low risk of adverse effects, which are usually mild in nature. The observed developmental delays cannot be unequivocally attributed to these medications, as other risk factors also play a significant role. Further research is needed to more accurately assess the safety of their use during lactation [38]. A comparative systematic review of infant safety has also confirmed that the use of second-generation antipsychotic medications during breastfeeding appears to be relatively safe in the short term, as infant exposure is typically low and adverse effects are rare (with the exception of clozapine). At the same time, further research is necessary, particularly concerning the long-term impact of these medications and less-studied substances [39]. A study conducted on a breastfeeding woman (mother of twins) showed that olanzapine and quetiapine pass into breast milk in small amounts, and infant exposure remains low. The use of an appropriate dosing strategy can further limit children's exposure. Due to the nature of the case report, the results have limited generalizability [40]. The concentrations of fluoxetine and its metabolite in serum and breast milk correlate with the levels observed in breastfed infants. The infant's exposure depends on the drug dosage; at doses ≤20 mg/day, it is generally low. Despite detectable concentrations, no adverse effects have been observed in infants [41]. The concentration of lamotrigine in the mother’s serum strongly correlates with its level in milk, which allows for the prediction of the infant’s exposure during breastfeeding. Although the drug does pass into milk, the dose received by the child is moderate, and monitoring the mother’s concentration can be clinically useful [42].

8. Conclusion

Breastfeeding is not only the primary form of infant nutrition, but it also brings a wide range of benefits, such as supporting children's mental and social health, reducing the risk of certain mental disorders, improving cognitive development, and protecting mothers from potential mental health issues. Breastfeeding supports the mother–child bond, protects against neglect, and promotes the development of a healthy personality, while the nutrients contained in breast milk support neurological, language, and cognitive development, and may also provide protection against the occurrence of ASD. Neurological studies also indicate beneficial changes in the structure and functioning of the brain in breastfed children, especially in preterm infants.

Breastfeeding is also associated with small but significant benefits in cognitive and neurodevelopmental growth, especially during early childhood. This effect depends on the duration of breastfeeding as well as accompanying environmental and genetic factors, which play a key role in shaping a child's development.

Early nutritional experiences, including breastfeeding as described by us, may play a significant role in shaping mental health later in life. Some studies clearly emphasize the impact of breastfeeding - especially when it continues for longer than 4-6 months - on reducing the risk of certain mental disorders, such as major depression, anxiety disorders, or ADHD. Prolonged breastfeeding is associated with milder depressive symptoms during adolescence and also protects against the negative effects of psychosocial stress. At the same time, research results are not entirely consistent. For some disorders, such as schizophrenia or certain anxiety disorders, the available data do not confirm a significant association with breastfeeding or indicate only a modest protective effect. Many studies also highlight the potential influence of confounding factors, such as the mother’s mental health, lifestyle, or environmental factors. The information above points to the need for further research that will allow us to verify this relationship more precisely.

There is also evidence suggesting that breastfeeding may reduce the risk of ASD, partly by stimulating the oxytocin system and providing polyunsaturated fatty acids. Individual reports also indicate potential links between shorter breastfeeding duration and other health issues, such as a higher frequency of vaginismus in women, although the mechanisms behind these associations require further clarification. Regarding eating disorders, no clear connection has been found with the duration of breastfeeding, and the number of studies in this area remains limited.

The mother's mental state and the pharmacotherapy she uses also affect the composition of breast milk, modulating the content of nutrients, which may indirectly influence the child's development. At the same time, breastfeeding itself can have a protective effect on the mother's mental health. Available studies indicate that the use of certain psychotropic medications during lactation is generally associated with low infant exposure through breast milk and rare occurrences of adverse effects; however, due to the limited number of studies, especially long-term ones, further assessment of their safety is necessary.

In summary, breastfeeding may have a potential protective effect regarding certain aspects of mental health. However, it should be noted that research findings are varied and limited by methodological factors such as differences in the duration of breastfeeding, its intensity, as well as socioeconomic, genetic, and social conditions. Therefore, further research is necessary to more precisely determine the impact of breastfeeding on cognitive development and the potential development of mental disorders in children and adults.

Disclosure:

1. Author Contribution Statement

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