

Breastfeeding in Mothers with Chronic Illnesses

Kronik Hastalığı Olan Annelerde Emzirme

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Abstract

The growing number of women who wish to have children with chronic diseases has resulted in a lack of knowledge regarding the management of the process during breastfeeding. The difficulties experienced by mothers with chronic diseases during the breastfeeding period have a negative impact on the success of breastfeeding. If healthcare personnel adopt a proactive approach and are equipped to manage breastfeeding issues, it will facilitate the achievement of breastfeeding goals by mothers with chronic diseases. The aim of this systematic review is to evaluate the current literature on breastfeeding issues, experiences, medication use, and management in mothers with chronic disease.

Keywords: Breastfeeding, chronic diseases, mother

Öz

Kronik hastalıklara sahip çocuk sahibi olmak isteyen kadınların sayısındaki artış, emzirme dönemindeki sürecin yönetimine ilişkin bilgi eksikliğine yol açmıştır. Kronik hastalığı olan annelerin emzirme döneminde yaşadıkları zorluklar, emzirmenin başarısını olumsuz etkilemektedir. Sağlık personelinin proaktif bir yaklaşım benimsemesi ve emzirme sorunlarını yönetebilecek donanıma sahip olması, kronik hastalığı olan annelerin emzirme hedeflerine ulaşmasını kolaylaştıracaktır. Bu sistematik derlemenin amacı, kronik hastalığı olan annelerde emzirme problemleri, deneyimleri, ilaç kullanımı ve yönetimi ile ilgili mevcut literatürü değerlendirmektir.

Anahtar kelimeler: Anne, emzirme, kronik hastalıklar

Introduction

Breast milk is a unique biofluid that contains all the nutrients necessary for the optimal growth and development of infants. The World Health Organization, UNICEF, and the American Academy of Pediatrics recommend initiating breastfeeding within the first hour after birth, exclusive breastfeeding for the first six months of life, and continuing breastfeeding for two years or longer (1,2). A meta-analysis of 14 studies found that children who were breastfed for at least six months experienced a lower incidence of obesity, diabetes, asthma, sudden infant death syndrome, otitis media, lower respiratory tract illnesses, and gastrointestinal infections (3,4). It is estimated that approximately 10-20%

of pregnant women have one or more chronic diseases (5). Lack of information on medication use during pregnancy and postpartum leads women with chronic illnesses, such as lupus and polycystic ovary syndrome, to start formula feeding earlier and breastfeed for shorter periods (6). In this review, the management of breastfeeding in mothers with chronic diseases is discussed, focusing on the drugs and approaches that can be used during the relevant period.

Method

This review included original research articles (either observational or experimental), clinical guidelines, and systematic reviews published in English. The focus was

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on the breastfeeding experiences of mothers with chronic conditions. Case reports, conference abstracts and commentaries were excluded from the review. The term “breastfeeding” is defined as any method by which the infant consumes breast milk, including methods other than direct breastfeeding such as bottle-fed expressed breast milk. The search strategy was conducted using a keywords, including “chronic diseases”, “mother”, “breastfeeding”, “woman”, “diabetes mellitus”, “multiple sclerosis”, “myasthenia gravis”, “rheumatic diseases”, “bipolar disorder”, “attention deficit hyperactivity disorder”, “depression”, and “autism spectrum disorder”, across databases, including PubMed, Google Scholar, and Scopus. Furthermore, manual search strategies were employed including the scanning of reference lists and cited articles within each database. The search is limited to publications published between January 2014 and March 2024. The review included 35 original research articles, along with 24 systematic reviews, 2 meta-analysis reviews, and 3 guidelines (note: There is a numerical inconsistency in the original input; please verify for accuracy.) Articles were extracted by one author and verified by a second, and discrepancies were resolved by discussion and consensus.

Diabetes

Diabetes is one of the most prevalent chronic diseases among pregnant women and mothers (7). Among women who were not previously diagnosed with diabetes, 6% developed gestational diabetes mellitus (GDM), which was first diagnosed during pregnancy and is characterised by glucose intolerance (8). GDM alters maternal metabolism, gut flora, and placental structure, leading to changes in breast milk composition, including immune factors, proteins, lipids, hormones, and nutrients (9). The colostrum of mothers with GDM has a higher concentration of human milk oligosaccharides, which promote growth, support intestinal microbiota balance, strengthen the immune system, and reduce infection rates (10). Some studies have found that women with GDM are generally less likely to initiate and continue breastfeeding than non-diabetic mothers (11). One-third of mothers with GDM experience delayed stage 2 lactogenesis due to obesity, insulin resistance, and inadequate support; this constitutes the most significant barrier to successful breastfeeding (12). However, recent studies comparing mothers with GDM who manage their condition through diet with those who use medication have shown no difference in breastfeeding rates at hospital discharge and three months postpartum (13). It is therefore important to provide support to these

mothers from the pregnancy period onward in order to initiate and sustain breastfeeding (14). Infants of mothers with GDM are at an increased risk of complications, including hypoglycaemia, preeclampsia, preterm birth, fetal macrosomia, polyhydramnios, shoulder dystocia, caesarean delivery, neonatal respiratory distress, and delayed lactogenesis II. These complications frequently result in the separation of the mother-infant pair, leading to the initiation of formula supplementation and a reduction in breastfeeding duration. In such cases, it is recommended that mothers express and store breast milk during the final weeks of pregnancy for use postpartum (15). In the management of GDM, oral hypoglycaemic agents and insulin are employed to regulate glucose levels. Insulin, a large molecule that is not expected to pass into breast milk through diffusion, is considered to be compatible with breastfeeding. Glyburide is an oral hypoglycaemic agent used in the treatment of GDM and pregestational type 2 diabetes. It is a low-molecular-weight compound that is not expected to pass into breast milk through diffusion, rendering it compatible with breastfeeding. Nevertheless, infants should be monitored for hypoglycaemic symptoms (16). Metformin, which reduces insulin resistance, is considered safe during lactation. However, caution should be exercised in premature infants or infants with impaired kidney function (17).

Multiple Sclerosis (MS)

MS is an autoimmune inflammatory disease characterised by the formation of sclerotic plaques in the central nervous system, leading to neuronal demyelination and damage. Approximately two-thirds of all MS cases occur in women of childbearing age. Given that many women diagnosed with MS may still desire to have children at the time of diagnosis, it is crucial to engage in a proactive discussion of the impact of treatment options on pregnancy and breastfeeding. In general, there is a reduction in the risk of relapse during pregnancy in MS. However, an increase in the risk of relapse is observed following childbirth (18). The following medications were employed: interferon beta (IFN-B), glatiramer acetate, teriflunomide, dimethyl fumarate, fingolimod, cladribine, monoclonal antibodies (natalizumab, ofatumumab, ocrelizumab, and alemtuzumab), and disease-modifying antirheumatic drugs (DMARDs) such as rituximab. It has been demonstrated that breastfeeding protects against relapse in women with MS following childbirth (19). It is reported that the rate of postpartum relapse in breastfeeding women is 37% lower than in women who do not breastfeed or give both breast

milk and formula after birth (20). The British Association of Neurology recommends encouraging breastfeeding of mothers with MS during the postpartum period. It was stated that if the disease relapses, methylprednisolone can be used, and breastfeeding can continue during this process. Among the medications used in MS treatment, glatiramer acetate, IFN-B, and natalizumab can be used during breastfeeding (21). Another study published in 2023 showed that ocrelizumab and ofatumumab are considered safe during breastfeeding and are present in very low concentrations in breast milk (22-24). Despite all of this, the available data on the use of monoclonal antibodies and DMARDs during pregnancy and breastfeeding is limited. Although the European Medicines Agency (EMA) asserts that IFN-B is safe during breastfeeding, the Food and Drug Administration has not provided reliable data for any medication (25). A case-by-case evaluation should be conducted. In conclusion, breastfeeding should be encouraged for mothers with MS, as it confers both physical and psychological benefits. Nevertheless, the potential effects of treatments administered during this process on the health of both the mother and the infant should be discussed with the family, and a joint decision should be made regarding the continuation of breastfeeding.

Myasthenia Gravis (MG)

MG is an autoimmune disease characterized by the formation of muscle antibodies against the acetylcholine receptor, MuSK, or LRP4 at the neuromuscular junction, resulting in weakness. Neonatal myasthenia occurs in 5-15% of babies born to mothers with MG. Weak sucking, swallowing difficulties, and hypotonia are observed in infants due to decreased muscle strength. The condition usually persists for several days or weeks before gradually improving lasting no more than three months. It is important to provide help and support regarding breastfeeding during this period (26). Many of the drugs used in the treatment of MG are compatible with breastfeeding. Pyridostigmine, low to moderate doses of corticosteroids, azathioprine, tacrolimus, cyclosporine, and their metabolites have very low concentrations in breast milk; therefore, they can be used during breastfeeding (27-30). Breastfeeding should be encouraged to mothers with MG (31). However, breastfeeding is not recommended for mothers with MG who use mycophenolate mofetil, methotrexate, and cyclophosphamide (32-34).

Rheumatic Diseases (RDs)

RDs, including systemic lupus erythematosus, inflammatory arthritis (rheumatoid, psoriatic, juvenile,

spondyloarthropathies, and other rare rheumatic diseases (vasculitis, scleroderma, and sarcoidosis), are frequently observed in women of reproductive age. The advent of more efficacious treatments for rheumatic diseases has enabled women to live longer and healthier lives, thereby enhancing their reproductive capacity (35).

A prospective study conducted in Norway involving women with lupus revealed that breastfeeding rates were 78% at 6 weeks postpartum, 54% at 6 months, and 30% at 12 months postpartum. The study observed that multiparous women breastfed for a longer duration than primiparous women, and that disease activity did not affect breastfeeding (36). Women with autoimmune RDs encounter difficulties in making informed decisions about infant feeding and long-term management due to a lack of information and support. Some women reported feeling pressured to breastfeed and expressed feelings of guilt when they were unable to breastfeed successfully or chose not to breastfeed. Consequently, it is imperative to implement targeted interventions to assist women with rheumatic diseases in their infant feeding decisions. These interventions should adopt a non-judgmental and person-centered approach, including the education of healthcare professionals (37). The 2023 guidelines published by the British Society for Rheumatology regarding the use of anti-rheumatic drugs during pregnancy and breastfeeding indicate that prednisolone, hydroxychloroquine, sulfasalazine, azathioprine, cyclosporine, tacrolimus, intravenous immunoglobulin, and anti-TNF drugs (infliximab, etanercept, adalimumab, certolizumab, and golimumab) are considered safe during breastfeeding. The safety of biological DMARDs (rituximab, IL-6 inhibitors, IL-1 inhibitors, abatacept, belimumab, IL-17 inhibitors, and IL-12/23 inhibitors) during breastfeeding is based on the limited evidence available (38).

Bipolar Disorder

The postpartum period represents a high-risk period for mothers with bipolar disorder, particularly during the initial month following delivery. This is due to an increased risk of developing psychosis (39). In a study published by the French Neuropsychopharmacology Society in 2023, mood stabilizers were classified using Hale's system for the safety of antipsychotic drugs during breastfeeding. This classification was based on the potential for adverse effects on the infant, with the drugs classified as L2 (safer) and L4 (possibly hazardous) in the risk assessment categories. Mood stabilisers, including carbamazepine, lamotrigine, olanzapine, quetiapine, and risperidone which have

been classified in the L2 group, have been the subject of limited studies in breastfeeding women. No evidence of adverse effects on breastfed infants has been reported in the literature (40-45). Studies concerning lithium and valproate, classified as L4, indicate a potential risk for breastfed infants. However, it is reported that breastfeeding can continue on a case-by-case basis, with the decision to continue breastfeeding (40,46,47). Lithium represents a first-line treatment option for postpartum psychosis. The excretion of lithium into breast milk and its concentration in the infant's serum are highly variable. However, it has been observed that lithium does not accumulate in the infant despite being excreted into breast milk (48). It is recommended that lithium serum levels in infants, thyroid function tests, and blood urea and creatinine values be monitored on the second day and first week postpartum. Furthermore, clinical follow-up should be continued in the first and second months postpartum (48). The lithium dosage may increase during pregnancy, so the mother's serum levels should be frequently monitored postpartum, and the dose adjusted to prevent excessive exposure to the baby through breast milk (49). Furthermore, it is important to monitor any changes in the infant's movements, including hypotonia, restlessness, or feeding difficulties (50). In conclusion, given the relatively high exposure of breastfed infants to lithium and the limited short- and long-term safety data, lithium should be considered in situations where alternative treatments are not available (51). For mothers with bipolar disorder, insomnia has been demonstrated to increase the risk of manic episodes, while four hours of uninterrupted sleep has been shown to reduce this risk. Therefore, feeding can be continued with expressed breast milk provided by another adult in order to ensure that the infant remains nourished with breast milk (52). It is of great importance that mothers in this patient group are followed carefully when breastfeeding is stopped. It has been postulated that an increase in dopaminergic discharge resulting from a reduction in prolactin and oxytocin levels may be a contributing factor in the onset of manic episodes (8).

Depressive Disorders

Depressive symptoms are a common occurrence during the postpartum period, with an estimated prevalence of 7-20% among mothers (53). Mothers diagnosed with depression prior to pregnancy who continued breastfeeding until the third month postpartum exhibited a reduction in depressive symptoms (54). Furthermore, maternal depression has been demonstrated to have a

detrimental impact on the infant's microbiota. However, breastfeeding has also been shown to mitigate this effect (55). The French Neuropsychopharmacology Society has classified antidepressants that can be used during the postpartum period as L2 (safer) and L3 (moderately safe). Antidepressants classified as L2 included amitriptyline, citalopram, clomipramine, escitalopram, fluoxetine, paroxetine, sertraline, and venlafaxine. A limited number of studies have been conducted on breastfeeding women, and no evidence of adverse effects on breastfed infants has been found (40). Among the drugs classified as L3, bupropion, duloxetine, esketamine, milnacipran, mirtazapine, and vortioxetine have been reported to cause mild side effects during the breastfeeding period (40). At present, there is no medication in the L1 category widely used by breastfeeding women that has shown any evidence of adverse effects on infants. In conclusion, a complex relationship between breastfeeding and maternal depression indicates that supporting the mental health of mothers during the peripartum period would enhance the likelihood of successful breastfeeding.

Attention Deficit Hyperactivity Disorder (ADHD)

ADHD is a neurobehavioral disorder that affects 2-5% of adults. It has been documented that mothers with ADHD, due to their experiences of needing to focus their attention, may perceive breastfeeding as a challenging and complex process (56). It was demonstrated that the intention to breastfeed and the duration of breastfeeding were both negatively affected as a consequence (57). Dopaminergic, noradrenergic, and serotonergic drugs are employed to treat ADHD and are increasingly prescribed to women of childbearing age. The use of methylphenidate during breastfeeding is considered safe, as it is present at undetectable levels in breast milk, and no adverse effects on the infant have been reported (58). Nevertheless, amphetamine and clonidine are contraindicated during breastfeeding due to their high concentrations in breast milk, which can result in sleep disturbances, aggression, and seizures in breastfed infants (59). The use of atomoxetine, guanfacine, and modafinil during breastfeeding is not recommended due to a lack of data on their effects during this period (60,61).

Autism Spectrum Disorder

Autism is a neurodevelopmental condition that typically begins in childhood and is characterised by difficulties in verbal and non-verbal communication, restricted and repetitive behaviours, and an altered perception of the

world in terms of visual and sensory perception (62). A significant proportion of autistic mothers express a desire to breastfeed, yet breastfeeding rates are reported to be low due to a lack of adequate support from healthcare professionals and social networks, fatigue, disruption of routine, and sensory challenges such as intolerable sensations during breastfeeding, including “touch” and “pain” (63). In a study, it was stated that 10% of mothers with autism were uncomfortable with direct contact during the breastfeeding process; this led them to feed their babies with expressed milk. However, it has also been observed that when mothers receive breastfeeding support, their unpleasant feelings tend to decrease (64). On the other hand, it was found that some mothers with autism perceived the ritual of preparing formula milk as a source of peace of mind, which was the reason for their moderate approach to giving formula milk (65). Furthermore, healthcare professionals should be aware of the need to respect the privacy of autistic mothers and to obtain their permission before touching them. They should provide assistance to the mother without physical contact. Thus, continued collaboration between autistic mothers and healthcare professionals can ensure breastfeeding success (66).

Conclusion

The decision-making process of mothers with chronic diseases about breastfeeding is affected by many factors. It is necessary for these mothers to be informed about breastfeeding from the beginning of their pregnancy, to be provided with breastfeeding counseling after birth, and to have the mother-baby couple closely monitored. In this process, which is different for each mother, it will be effective for health professionals to know the risks that mothers with chronic diseases may experience, to support mothers' self-confidence, and to be informed about the effects of the medications used on breastfeeding. In addition, pediatricians should cooperate with doctors managing the mothers' chronic diseases to ensure that the health of both the mother and the baby is maintained during breastfeeding. Treatment plans for these mothers should be tailored and managed on an individual basis, taking into consideration the specific needs of each patient. As a result, since pediatricians play a critical role in managing the breastfeeding process of mothers with chronic diseases, their knowledge of this issue and their close monitoring of breastfeeding will positively affect the breastfeeding outcomes of mothers.

Ethics

Footnotes

Authorship Contributions

Concept: N.K., Design: N.K., Data Collection or Processing: I.Ç.H., Analysis or Interpretation: N.K., Literature Search: I.Ç.H., Writing: I.Ç.H.

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References

1. Infant and young child feeding [Internet]. [cited 2024 Mar 9]. Available from: <https://www.who.int/news-room/fact-sheets/detail/infant-and-young-child-feeding>
2. Breastfeeding: AAP Policy Explained [Internet]. HealthyChildren.org. [cited 2024 Mar 9]. Available from: <https://www.healthychildren.org/English/ages-stages/baby/breastfeeding/Pages/Where-We-Stand-Breastfeeding.aspx>
3. Oddy WH. Breastfeeding, childhood asthma, and allergic disease. *Ann Nutr Metab.* 2017;70(Suppl 2):26-36.
4. Ma J, Qiao Y, Zhao P, Li W, Katzmarzyk PT, Chaput JP, et al. Breastfeeding and childhood obesity: A 12-country study. *Matern Child Nutr.* 2020;16(3):e12984.
5. Scime NV, Lee S, Jain M, Metcalfe A, Chaput KH. A scoping review of breastfeeding in women with chronic diseases. *Breastfeed Med.* 2021;16(11):851-862.
6. Scime NV, Patten SB, Tough SC, Chaput KH. Maternal chronic disease and breastfeeding outcomes: a Canadian population-based study. *J Matern Fetal Neonatal Med.* 2022;35(6):1148-1155.
7. Cordero L, Stenger MR, Landon MB, Nankervis CA. Exclusive breastfeeding among women with type 1 and type 2 diabetes mellitus. *BMC Pregnancy Childbirth.* 2022;22(1):69.
8. Stuebe AM. Medical Complications of mothers. In: Lawrence RA, Lawrence RM, editors. *Breastfeeding: a guide for the medical profession.* Ninth edition. Philadelphia, PA: Elsevier; 2022. p. 546.
9. Peila C, Gazzolo D, Bertino E, Cresi F, Coscia A. Influence of diabetes during pregnancy on human milk composition. *Nutrients.* 2020;12(1):185.
10. Dou Y, Luo Y, Xing Y, Liu H, Chen B, Zhu L, et al. Human milk oligosaccharides variation in gestational diabetes mellitus mothers. *Nutrients.* 2023;15(6):1441.
11. Oza-Frank R, Moreland JJ, McNamara K, Geraghty SR, Keim SA. Early lactation and infant feeding practices differ by maternal gestational diabetes history. *J Hum Lact.* 2016;32(4):658-665.
12. Matias SL, Dewey KG, Quesenberry CP, Gunderson EP. Maternal prepregnancy obesity and insulin treatment during pregnancy are independently associated with delayed lactogenesis in women with recent gestational diabetes mellitus. *Am J Clin Nutr.* 2014;99(1):115-121.

13. Kole-White MB, Griffin L, Ding JJ, Ayala NK, Has P, Werner EF. Breastfeeding success among women with gestational diabetes managed by diet only compared with those requiring medications. *Breastfeed Med.* 2021;16(5):419-423.
14. Loewenberg Weisband Y, Rausch J, Kachoria R, Gunderson EP, Oza-Frank R. Hospital supplementation differentially impacts the association between breastfeeding intention and duration among women with and without gestational diabetes mellitus history. *Breastfeed Med.* 2017;12(6):338-344.
15. Moorhead AM, Amir LH, Forster DA, Crawford SB. 'Is there any point in me doing this?' Views and experiences of women in the diabetes and antenatal milk expressing (DAME) trial. *Matern Child Nutr.* 2022;18(2):e13307.
16. Glyburide. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 21]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK500865/>
17. Metformin. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 21]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501020/>
18. LaHue SC, Gelfand AA, Bove RM. Navigating monoclonal antibody use in breastfeeding women: Do no harm or do little good? *Neurology.* 2019;93(15):668-672.
19. Krysko KM, Rutatangwa A, Graves J, Lazar A, Waubant E. Association between breastfeeding and postpartum multiple sclerosis relapses. *JAMA Neurol.* 2020;77(3):327-338.
20. Collorone S, Kodali S, Toosy AT. The protective role of breastfeeding in multiple sclerosis: Latest evidence and practical considerations. *Front Neurol.* 2023;13:1090133.
21. Dobson R, Dassan P, Roberts M, Giovannoni G, Nelson-Piercy C, Brex PA. UK consensus on pregnancy in multiple sclerosis: 'Association of British Neurologists' guidelines. *Pract Neurol.* 2019;19(2):106-114.
22. Natalizumab. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501613/>
23. Ocrelizumab. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK500903/>
24. Ofatumumab. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK500586/>
25. Capone F, Albanese A, Quadri G, Di Lazzaro V, Falato E, Cortese A, et al. Disease-modifying drugs and breastfeeding in multiple sclerosis: A narrative literature review. *Front Neurol.* 2022;13:851413.
26. Lindroos JLV, Björk MH, Gilhus NE. Transient neonatal myasthenia gravis as a common complication of a rare disease: A systematic review. *J Clin Med.* 2024;13(4):1136.
27. Pyridostigmine. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501386/>
28. Azathioprine. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501050/>
29. Tacrolimus. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 29]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501104/>
30. Cyclosporine. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 29]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501683/>
31. Alotiby AA. The role of breastfeeding as a protective factor against the development of the immune-mediated diseases: A systematic review. *Front Pediatr.* 2023;11:1086999.
32. Mycophenolate. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501638/>
33. Methotrexate. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501341/>
34. Cyclophosphamide. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 28]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501672/>
35. Birru Talabi M, Clowse MEB. Antirheumatic medications in pregnancy and breastfeeding. *Curr Opin Rheumatol.* 2020;32(3):238-246.
36. Bjerkaas Hanssen M, Malm Gulati A, Koksvis H, Wallenius M. Breastfeeding in women with systemic lupus erythematosus: results from a Norwegian quality register. *Int Breastfeed J.* 2023;18(1):37.
37. Williams D, Webber J, Pell B, Grant A, Sanders J, Choy E, et al. "Nobody knows, or seems to know how rheumatology and breastfeeding works": Women's experiences of breastfeeding whilst managing a long-term limiting condition – A qualitative visual methods study. *Midwifery.* 2019;78:91-96.
38. Russell MD, Dey M, Flint J, Davie P, Allen A, Crossley A, et al. British society for rheumatology guideline on prescribing drugs in pregnancy and breastfeeding: immunomodulatory anti-rheumatic drugs and corticosteroids. *Rheumatology (Oxford).* 2023;62(4):e48-e88.
39. Pacchiarotti I, León-Caballero J, Murru A, Verdolini N, Furio MA, Pancheri C, et al. Mood stabilizers and antipsychotics during breastfeeding: Focus on bipolar disorder. *Eur Neuropsychopharmacol.* 2016;26(10):1562-1578.
40. Belzeaux R, Gressier F, Boudieu L, Arnould A, Moreau E, Pastol J, et al. French society for biological psychiatry and neuropsychopharmacology and French-speaking Marcé society guidelines for the management of mood disorders in women before, during, and after pregnancy. *Arch Womens Ment Health.* 2024;27(4):595-605.
41. Carbamazepine. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501271/>
42. Lamotrigine. In: *Drugs and lactation database (LactMed®)* [Internet]. Bethesda (MD): National Institute of Child Health and

- Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501268/>
43. Olanzapine. In: Drugs and lactation database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501056/>
44. Quetiapine. In: Drugs and lactation database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501087/>
45. Risperidone. In: Drugs and lactation database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501095/>
46. Lithium. In: Drugs and Lactation Database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501153/>
47. Valproic Acid. In: Drugs and lactation database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 Apr 30]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501274/>
48. Imaz ML, Langohr K, Torra M, Soy D, García-Esteve L, Martin-Santos R. Neonatal feeding trajectories in mothers with bipolar disorder taking lithium: Pharmacokinetic data. *Front Pharmacol* [Internet]. 2021 Sep 22 [cited 2024 Apr 4];12. Available from: <https://www.frontiersin.org/journals/pharmacology/articles/10.3389/fphar.2021.752022/full>
49. Westin AA, Brekke M, Molden E, Skogvoll E, Aadal M, Spigset O. Changes in drug disposition of lithium during pregnancy: a retrospective observational study of patient data from two routine therapeutic drug monitoring services in Norway. *BMJ Open*. 2017;7(3):e015738.
50. Hermann A, Gorun A, Benudis A. Lithium use and non-use for pregnant and postpartum women with bipolar disorder. *Curr Psychiatry Rep*. 2019;21(11):114.
51. Uguz F, Sharma V. Mood stabilizers during breastfeeding: a systematic review of the recent literature. *Bipolar Disord*. 2016;18(4):325-333.
52. Sprague J, Wisner KL, Bogen DL. Pharmacotherapy for depression and bipolar disorder during lactation: A framework to aid decision making. *Semin Perinatol*. 2020;44(3):151224.
53. Kim S, Park M, Ahn S. The impact of antepartum depression and postpartum depression on exclusive breastfeeding: A systematic review and meta-analysis. *Clin Nurs Res*. 2022;31(5):866-880.
54. Figueiredo B, Pinto TM, Costa R. Exclusive breastfeeding moderates the association between prenatal and postpartum depression. *J Hum Lact*. 2021;37(4):784-794.
55. Rodriguez N, Tun HM, Field CJ, Mandhane PJ, Scott JA, Kozyrskyj AL. Prenatal depression, breastfeeding, and infant gut microbiota. *Front Microbiol* [Internet]. 2021 Jul 30 [cited 2024 Apr 6]. Available from: <https://www.frontiersin.org/journals/microbiology/articles/10.3389/fmicb.2021.664257/full>
56. Katzman MA, Bilkey TS, Chokka PR, Fallu A, Klassen LJ. Adult ADHD and comorbid disorders: clinical implications of a dimensional approach. *BMC Psychiatry*. 2017;17(1):302.
57. Freund-Azaria A, Bar-Shalita T, Regev R, Bart O. The role of motor coordination, ADHD-related characteristics and temperament among mothers and infants in exclusive breastfeeding: A cohort prospective study. *Int J Environ Res Public Health*. 2022;19(9):5509.
58. Methylphenidate. In: Drugs and lactation database (LactMed®) [Internet]. Bethesda (MD): National Institute of Child Health and Human Development; 2006 [cited 2024 May 15]. Available from: <http://www.ncbi.nlm.nih.gov/books/NBK501310/>
59. Ornoy A, Koren G. The effects of drugs used for the treatment of attention deficit hyperactivity disorder (ADHD) on pregnancy outcome and breast-feeding: A critical review. *Curr Neuropharmacol*. 2021;19(11):1794-1804.
60. Kittel-Schneider S, Quednow BB, Leutritz AL, McNeill RV, Reif A. Parental ADHD in pregnancy and the postpartum period - A systematic review. *Neurosci Biobehav Rev*. 2021;124:63-77.
61. Ornoy A. pharmacological treatment of attention deficit hyperactivity disorder during pregnancy and lactation. *Pharm Res*. 2018;35(3):46.
62. Wang L, Wang B, Wu C, Wang J, Sun M. Autism spectrum disorder: Neurodevelopmental risk factors, biological mechanism, and precision therapy. *Int J Mol Sci*. 2023;24(3):1819.
63. Pohl AL, Crockford SK, Blakemore M, Allison C, Baron-Cohen S. A comparative study of autistic and non-autistic women's experience of motherhood. *Mol Autism*. 2020;11(1):3.
64. Grant A, Jones S, Williams K, Leigh J, Brown A. Autistic women's views and experiences of infant feeding: A systematic review of qualitative evidence. *Autism*. 2022;26(6):1341-1352.
65. Grant A, Griffiths C, Williams K, Brown A. "It felt like I had an old fashioned telephone ringing in my breasts": An online survey of UK Autistic birthing parents' experiences of infant feeding. *Matern Child Nutr*. 2024;20(1):e13581.
66. Donovan J, Chiatti BD, McKeever A, Bloch JR, Gonzales MS, Birati Y. "Yes, I can bond." Reflections of autistic women's mothering experiences in the early postpartum period. *Womens Health (Lond)*. 2023;19:17455057231175312.