



Bidirectional Relationship Between Breastfeeding and Postpartum Depression: Current Evidence and Clinical Implications

Sobia Noor ¹, Saritha Chukka ^{2*}

¹ Research Scholar, Department of Pharmacy Practice, Chaitanya (Deemed to be University), Himayat Nagar, Telangana, Hyderabad, India.

^{2*} Associate Professor, Department of Pharmaceutics, Chaitanya (Deemed to be University), Himayat Nagar, Telangana, Hyderabad, India.

(Received: 27 October 2025 Revised: 05 November 2025 Accepted: 04 December 2025)

KEYWORDS

Postpartum Depression (PPD), Breastfeeding, Maternal Mental Health, Infant Feeding, Bidirectional Relationship, Integrated Care, Lactation, Perinatal Depression.

ABSTRACT:

Purpose: Postpartum depression (PPD) is a common maternal mental health condition affecting 10–20% of women globally. Concurrently, breastfeeding though widely endorsed for its maternal and infant health benefits often falls short of optimal initiation and continuation rates. This review examines the bidirectional relationship between PPD and breastfeeding, emphasizing the mutual influences and mediating factors.

Methods: A comprehensive literature search was conducted in PubMed, Scopus, EMBASE, Google Scholar, and the Cochrane Library for studies published between 2000 and 2024. Eligible publications included quantitative, qualitative, and review articles addressing associations between PPD and breastfeeding outcomes. Thematic synthesis was employed to identify patterns and moderators.

Findings: Evidence consistently indicates that PPD impairs breastfeeding initiation, duration, and exclusivity by reducing motivation, confidence, and physiological lactation response. Conversely, breastfeeding difficulties such as pain, perceived insufficiency, or premature weaning can trigger or exacerbate depressive symptoms. Maternal self-efficacy, social support, socioeconomic conditions, and cultural expectations were identified as key moderating factors.

Conclusions: The reciprocal nature of PPD and breastfeeding underscores the need for integrated perinatal care models. Early PPD screening, individualized lactation support, and psychosocial interventions are essential to improve maternal well-being and breastfeeding outcomes, promoting long-term health for both mother and child.

1. Introduction

Postpartum depression (PPD) is a major global public health issue. It's a non-psychotic depressive episode that starts during pregnancy or within the first year after childbirth. ^[1,2] While prevalence rates vary worldwide, shaped by geography and assessment methods, PPD consistently affects about 10-20% of mothers. Rates can be even higher among low- and middle-income countries (LMICs) and vulnerable groups. ^[3,4] Unlike the temporary "baby blues," PPD involves ongoing low mood, lack of interest in activities, constant fatigue, and disruptions in sleep and appetite. Many mothers feel guilt, inadequacy, have trouble concentrating, and in severe cases, may think of harming themselves or their infants. ^[5] Untreated PPD can seriously impact mothers' lives, strain relationships, and critically hinder infants' cognitive, emotional, and behavioural development. It

can also weaken the bond between mother and child. ^[6,7] Addressing PPD isn't just helpful, it's essential.

At the same time, breastfeeding is widely recommended by leading health organizations, including the World Health Organization (WHO) and UNICEF. It's the best way to feed infants, offering unmatched health benefits. ^[8] For babies, breastfeeding lowers the risks of gastrointestinal, respiratory, and ear infections; reduces the chances of sudden infant death syndrome (SIDS); supports neurocognitive development; and protects against chronic conditions like obesity, diabetes, and some childhood cancers. For mothers, it helps with postpartum recovery, reduces postpartum bleeding, promotes natural birth control through lactational amenorrhea, and lowers long-term risks of breast and ovarian cancers, type 2 diabetes, and heart disease. ^[11,12] Despite these proven advantages, breastfeeding rates



remain low in many areas, especially exclusive breastfeeding for the first six months. [13]

An increasing number of studies highlight a complex, possibly two-way relationship between PPD and breastfeeding practices. [14-16] PPD can make it harder for mothers to start and maintain breastfeeding, while breastfeeding challenges, perceived failures, or early weaning can trigger or worsen depressive symptoms. Understanding this connection is crucial for developing effective strategies that support maternal mental health and infant feeding practices.

2. Objectives

This review aims to:

1. Critically assess the evidence on the link between PPD and breastfeeding outcomes (initiation, duration, exclusivity).
2. Examine whether this relationship is reciprocal and identify the key factors that may influence it.
3. Discuss practical implications for healthcare providers, focusing on screening, assessment, and holistic care.
4. Evaluate existing and potential interventions to support both mental health and breastfeeding success.

3. Methods

This review adopted an integrative framework, encompassing quantitative, qualitative, and theoretical studies to synthesize current understanding of the PPD–breastfeeding relationship.

Search Strategy

As shown in Figure 1, Electronic databases, including PubMed/MEDLINE, Scopus, EMBASE, Google Scholar, and the Cochrane Library, were searched for articles published between January 2000 and May 2024. Search terms included combinations of “postpartum depression,” “perinatal depression,” “breastfeeding,” “lactation,” and “association” or “bidirectional relationship.” Boolean operators were applied to refine the results.

Inclusion and Exclusion Criteria

Studies were included if they:

- Investigated PPD diagnosed using validated tools (e.g., EPDS, PHQ-9);
- Reported breastfeeding outcomes (initiation, duration, or exclusivity);

- Were peer-reviewed and published in English.

Studies were excluded if they:

- Focused solely on antenatal depression without postpartum outcomes;
- Involved non-human subjects;
- Lacked full-text availability or methodological transparency.

Data Synthesis

Thematic synthesis was conducted to identify recurring patterns, mediating factors, and outcomes of interventions. Given the heterogeneity of study designs and measures, data were synthesized qualitatively rather than meta-analytically. Studies were cross-compared by methodology, geographic region, and sample characteristics.

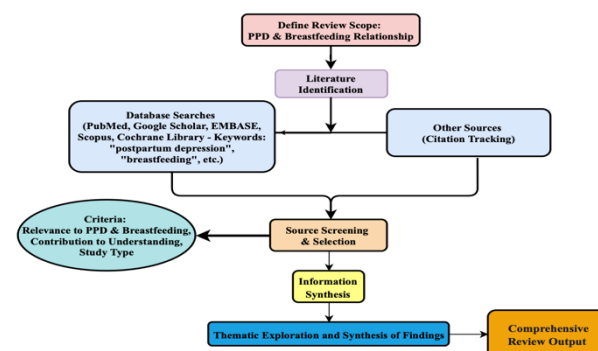


Figure 1. Overview of the methodological approach for the comprehensive literature review.

4. Association Between Postpartum Depression and Breastfeeding Practices

Research consistently shows a complex, bidirectional relationship between PPD and breastfeeding. These influences often create a feedback loop where one condition perpetuates the other.

Impact of postpartum depression on breastfeeding outcomes

PPD often becomes a significant barrier to breastfeeding, affecting when it starts, how long it lasts, and whether it remains exclusive.

Breastfeeding Initiation: Most mothers, even those with PPD, plan to breastfeed. However, studies suggest that PPD symptoms during early postpartum or pregnancy may lower the chances of starting breastfeeding or delay the onset of copious milk production (lactogenesis II). [17,18] Core symptoms like loss of pleasure, exhaustion, sluggishness, poor concentration, and hopelessness can sap a mother's



motivation and energy, making breastfeeding feel daunting. ^[19,20] Stress from depression may also hinder oxytocin release, crucial for milk production. ^[21,22] The NIHMP conducted an ethnographic study (2013–2014) analyzing socio-cultural factors affecting breastfeeding practices among vulnerable migrant mothers in Rome, highlighting the impact of traumatic events, such as IPV, on maternal health and infant feeding. ^[23]

Breastfeeding Duration and Exclusivity: The most explicit finding is the negative link between PPD and breastfeeding duration and exclusivity. ^[14,15,24] Mothers with PPD often stop breastfeeding earlier than planned, missing both personal goals and WHO guidelines. Factors contributing include:

- **Lower Confidence:** PPD erodes self-assurance, making mothers doubt their ability to breastfeed. They may misinterpret standard baby cues (like frequent feeding) as signs of milk shortage. ^[20,25]
- **Perceived Breastfeeding Issues:** Depressive thoughts can make routine challenges feel overwhelming, leading to reports of latch problems or low milk supply, even when objective evidence doesn't align. ^[26]
- **Reduced Responsiveness:** PPD can cause mothers to withdraw or become overly controlling, disrupting the mother-baby bond needed for successful breastfeeding. ^[27]
- **Seeking Relief:** Some mothers feel overwhelmed by breastfeeding and quit, seeing it as a way to reduce stress, especially if they lack support. ^[28]

A meta-analysis by Dias and Figueiredo found that maternal depression raised the risk of stopping breastfeeding by 30%. ^[14] Similarly, Brown and Rance found a consistent link between maternal depression and early breastfeeding cessation. ^[29]

Impact of Breastfeeding Experiences on Postpartum Mental Health

The relationship isn't one-way. Breastfeeding struggles, especially if seen as harmful or painful, can trigger or worsen PPD symptoms. Nipple pain, mastitis, engorgement, and issues like tongue-tie can feel overwhelming, especially when social pressure to breastfeed adds guilt and frustration. ^[15,30]

Premature Weaning and Expectations: When mothers wean earlier than planned, due to pain, lack of support, or external pressure, they may feel guilt, sadness, and a loss of maternal competence. ^[34,35] This mismatch between intentions and reality can become a significant stressor, sometimes leading to depression. ^[36] Some

researchers believe that abrupt weaning may trigger mood changes through hormonal shifts; however, more human studies are needed. ^[37]

The Bidirectional and Dynamic Nature of the Relationship

More experts now agree that PPD and breastfeeding struggles create a vicious cycle. ^[16,38] A mother with mild depressive symptoms may feel less confident about breastfeeding, facing small challenges that spiral into a depressive episode. The depression then worsens her ability to manage breastfeeding, leading to early cessation. Alternatively, a mother without depression might develop PPD after experiencing painful, persistent breastfeeding problems without support. Studies tracking mothers over time highlight this back-and-forth dynamic. ^[39,40]

Mediating and Moderating Factors

The strength of the PPD-breastfeeding link varies based on several factors:

- **Maternal Self-Efficacy:** Confidence in breastfeeding is a powerful buffer against PPD. Low self-efficacy can lead to early weaning, especially when depression undermines confidence. ^[20,42]
- **Support Systems:** Family, friends, and professionals play crucial roles. Practical support can reduce PPD risk and enhance breastfeeding, while a lack of support can intensify challenges. ^[43-45]
- **Infant Factors:** A baby's temperament (like frequent crying) or health issues (like colic) can add stress and complicate breastfeeding. ^[46,47]
- **Socioeconomic Factors:** Low income and limited education can increase PPD and breastfeeding challenges by limiting access to resources. ^[40,48]
- **Previous Experience:** Positive past breastfeeding can boost confidence, while previous struggles can heighten anxiety. ^[49]
- **Cultural Norms:** Societal attitudes toward breastfeeding and mental health can shape a mother's experience and willingness to seek help. ^[51]
- **Maternal Age and Parity:** Young or first-time mothers may face higher risks for both PPD and breastfeeding difficulties. ^[52]
- **Mode of Delivery:** Caesarean births, especially emergency ones, can delay breastfeeding initiation, increasing stress and PPD risk. ^[53]
- **Trauma History:** Past trauma can heighten vulnerability to PPD and breastfeeding



problems through psychological and physiological pathways. ^[54]

- **Co-occurring Anxiety:** PPD often coexists with anxiety disorders, which can independently disrupt breastfeeding due to heightened worry and stress. ^[55,56]

By addressing these factors, healthcare providers can better support mothers facing the intertwined challenges of PPD and breastfeeding.

Clinical Implications and Interventions

Addressing the interplay between postpartum depression (PPD) and breastfeeding requires healthcare providers to take an integrated, supportive approach. Early identification and intervention are crucial to improving outcomes for mothers facing both depression and breastfeeding challenges. ^[57]

Screening and Assessment

Healthcare professionals, including obstetricians, midwives, nurses, and paediatricians, should regularly screen for PPD during the postpartum period, especially when mothers report breastfeeding challenges. Using validated screening tools like the Edinburgh Postnatal Depression Scale (EPDS) ^[58] or the Patient Health Questionnaire-9 (PHQ-9) ^[59] can help catch depressive symptoms early. At the same time, it's vital to assess breastfeeding practices and difficulties since challenges in breastfeeding can heighten PPD risk and worsen existing symptoms. ^[60,61]

Integrated Care Strategies

Integrated care models that blend mental health support with expert lactation counselling show promise in helping mothers. These models aim to create a safe and welcoming environment where mothers can openly discuss their emotions while receiving practical, evidence-based guidance on breastfeeding. ^[57] Tackling both mental distress and breastfeeding challenges at the same time can lead to better outcomes, including longer breastfeeding duration and improved mental health. Peer support groups that normalize breastfeeding struggles can also ease feelings of isolation and failure. ^[62] Additionally, interventions that enhance maternal self-confidence have a positive impact on mental well-being and breastfeeding success. ^[63]

Tailored Interventions

Personalized approaches matter. Some mothers benefit greatly from psychotherapies like cognitive-behavioural therapy (CBT), proven effective for PPD ^[64], combined

with hands-on lactation support from qualified professionals. In moderate to severe PPD cases, antidepressants may be necessary. Providers should discuss medication options openly, considering both potential impacts on breastfeeding and mental health. SSRIs like sertraline, known for low infant exposure, are usually compatible with breastfeeding, but evaluating each case individually is essential. ^[65,66]

Training for Healthcare Providers

Healthcare providers working with postpartum families need ongoing training to understand the bidirectional link between PPD and breastfeeding. Developing skills in early mental health screening and effective lactation management ensures comprehensive, holistic care. ^[67,68]

Community and Policy Support

Building strong community support networks—including parent groups and peer-to-peer assistance can significantly improve breastfeeding continuation and maternal mental health. ^[69] Policymakers should also prioritize ensuring paid maternity leave and creating breastfeeding-friendly workplaces and public spaces. These systemic supports are vital during the postpartum period. ^[69,70]

By addressing PPD and breastfeeding as interconnected challenges, healthcare systems and communities can work together to enhance the health and well-being of mothers, infants, and families.

Potential Interventions

A range of targeted interventions can help break the cycle of postpartum depression (PPD) and breastfeeding challenges. Tailoring these interventions to the mother's needs, symptom severity, preferences, and available resources is essential.

Psychosocial Interventions for PPD

- **Evidence-Based Psychotherapies:** Cognitive Behavioural Therapy (CBT) and Interpersonal Therapy (IPT) are primary treatments for PPD, with substantial evidence supporting their effectiveness. ^[71-73] CBT helps mothers challenge negative thought patterns and build healthier coping strategies, including dealing with breastfeeding stress. IPT addresses interpersonal conflicts and role shifts contributing to PPD. Both therapies can be delivered individually or in groups.
- **Peer Support Programs and Mother-to-Mother Support:** Connecting with other mothers who've faced PPD or breastfeeding



struggles can significantly reduce isolation. These programs enhance coping skills, promote confidence, and offer practical advice and emotional support [74,75]. They can be run by professionals or peers, in person or online.

- **Partner-Inclusive Interventions:** Including partners in PPD and breastfeeding education can significantly enhance maternal well-being and breastfeeding outcomes. [76,77] Focusing on partner knowledge, support behaviours, and communication can make a meaningful difference.
- **Mindfulness-Based Interventions:** Techniques like Mindfulness-Based Cognitive Therapy (MBCT) and Mindfulness-Based Stress Reduction (MBSR) are gaining traction for managing PPD. They help mothers stay grounded and better handle breastfeeding-related physical discomfort or emotional stress. [78,79]

Lactation-Specific Interventions

- **Professional Lactation Support (IBCLCs):** Early access to skilled lactation consultants can prevent and resolve many breastfeeding problems, reducing stress and the risk of PPD. [80,81] Support should be available before birth, in-hospital, and through follow-up visits.
- **Comprehensive Antenatal Breastfeeding Education:** Quality antenatal training that covers practical skills, problem-solving, and realistic expectations enhances breastfeeding success and confidence. [82,83] Including mood and mental health information can further prepare mothers.
- **Technology-Assisted Lactation Support:** Telehealth, mobile apps, and online support groups are increasingly valuable for delivering accessible lactation help, especially in areas with limited resources. [84,85]

Integrated Interventions Targeting Both PPD and Breastfeeding: Integrated care is key. Combining mental health support with breastfeeding assistance addresses both challenges simultaneously. Examples include:

- Embedding PPD screening and brief mental health support into routine lactation visits.
- Group sessions that blend PPD education with breastfeeding guidance.
- Creating care pathways where mothers with PPD receive enhanced lactation support and vice versa.

While these models are promising, more rigorous research is needed to evaluate their effectiveness and sustainability. [86,87]

Pharmacological Interventions for PPD

When PPD is moderate to severe, or when psychosocial approaches fall short or aren't preferred, antidepressant medication might be necessary. [88] Choosing the proper medication requires weighing its safety profile during lactation. Many SSRIs, like sertraline and paroxetine, are generally safe for breastfeeding since they transfer into breast milk at low levels and typically cause minimal side effects in infants. [89-91] Tricyclic antidepressants (TCAs), such as nortriptyline, also have a solid safety record. Mothers and healthcare providers need to discuss the potential risks and benefits of medication versus leaving PPD untreated, keeping both maternal and infant well-being in mind. Resources like the LactMed® database can offer valuable insights. Typically, stopping breastfeeding is not needed to begin taking antidepressants, and doing so could increase a mother's stress.

Limitations of Current Evidence and Future Directions

Despite considerable progress, the literature on PPD and breastfeeding still has gaps that need attention. These gaps should guide future research.

Methodological Considerations and Causality: Many studies employ cross-sectional designs, which makes it challenging to determine causality or the exact timing between PPD and breastfeeding issues. Although longitudinal research is growing, controlling for confounding variables like pre-existing mental health issues, socioeconomic factors, obstetric complications, and partner support remains a challenge. Retrospective studies often face recall bias when mothers report breastfeeding duration or PPD symptoms [92,93]

Heterogeneity in Definitions and Measurement: Studies vary significantly in their definitions and measurements of PPD and breastfeeding. For instance, some use screening tools, such as the EPDS with different cut-offs, while others rely on structured interviews, like the SCID. Breastfeeding outcomes are inconsistently measured, ranging from 'any' versus 'exclusive' breastfeeding to self-reported duration versus daily logs. This inconsistency makes it challenging to compare results across studies and perform accurate meta-analyses. [92,93]

Lack of Diverse Populations and Contexts: Much research comes from high-income, Western countries, often focusing on white, middle-income groups. There's an urgent need for studies from low- and middle-income countries (LMICs) and among diverse ethnic, cultural, and socioeconomic groups. Adolescent mothers, parents of preterm infants, and LGBTQ+ families remain



underrepresented, even though their needs might differ significantly. ^[94,95]

Understanding Underlying Mechanisms: We know PPD and breastfeeding are linked, but we need to dig deeper into why. Researchers should focus on hormonal factors (such as oxytocin, prolactin, and cortisol), inflammatory pathways, neurobiological changes, and psychological elements, including attachment, identity, stress response, and coping mechanisms. ^[22,96,97]

Intervention Research Gaps: While some interventions work well for PPD or breastfeeding alone, we lack rigorous trials that address the overlap between the two. We need studies that evaluate integrated care models, culturally adapted approaches, and methods for involving partners. Implementation science should investigate how to effectively incorporate interventions into everyday healthcare. ^[98]

Focus on Paternal Mental Health: We also need more research on fathers' and partners' mental health and how it affects mothers and breastfeeding. When dads struggle with depression, it can impact family dynamics and reduce maternal support. ^[99]

Future research should focus on longitudinal studies employing multiple data points and standardized measures for PPD and breastfeeding. Incorporating mixed methods can effectively capture the lived experiences of mothers. Efforts should aim at reaching diverse populations that are often overlooked. Lastly, we need to create accessible and culturally sensitive interventions, finding practical ways to integrate them into healthcare.

5. Conclusion

Postpartum depression (PPD) and breastfeeding are intricately linked, often in a two-way street, profoundly impacting mothers and babies. PPD can derail breastfeeding, while distressing feeding experiences can fuel PPD, creating a damaging cycle. Clinicians must grasp this interplay, recognizing how confidence, support, and infant factors influence it. This reality demands urgent clinical action. We need universal, integrated screening for PPD and breastfeeding challenges throughout the perinatal journey, connecting early identification with accessible, mother-centred support. Healthcare providers must be skilled in offering sensitive guidance, fostering shared decisions, prioritizing overall well-being, and promoting collaborative care.

While current supports show promise, more research into integrated approaches tackling both maternal mental health and infant feeding is vital. Addressing this crucial

intersection isn't just a clinical issue; it's a public health imperative for stronger maternal-child health and families worldwide. Future research must refine our understanding, enhance the effectiveness of interventions, and ensure that every mother receives the care she deserves.

References

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*, 5th ed.; American Psychiatric Publishing: Arlington, VA, 2013.
2. Woody, C. A.; Ferrari, A. J.; Siskind, D. J.; Whiteford, H. A.; Harris, M. G. A systematic review and meta-regression of the global prevalence and incidence of perinatal depression. *J. Affect. Disord.* 2017, *219*, 86–92. <https://doi.org/10.1016/j.jad.2017.05.003>.
3. O'Hara, M. W.; McCabe, J. E. Postpartum depression: current status and future directions. *Annu. Rev. Clin. Psychol.* 2013, *9*, 379–407. <https://doi.org/10.1146/annurev-clinpsy-050212-185612>.
4. Fisher, J.; de Mello, M. C.; Patel, V.; Rahman, A.; Tran, T.; Holton, S.; et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: a systematic review. *Bull. World Health Organ.* 2012, *90*, 139–149G. <https://doi.org/10.2471/BLT.11.091850>.
5. Cox, J. L.; Murray, D.; Chapman, G. A controlled study of the onset, duration and prevalence of postnatal depression. *Br. J. Psychiatry* 1993, *163*(1), 27–31. <https://doi.org/10.1192/bjp.163.1.27>.
6. Goodman, S. H.; Rouse, M. H.; Connell, A. M.; Broth, M. R.; Hall, C. M.; Heyward, D. Maternal depression and child psychopathology: a meta-analytic review. *Clin. Child Fam. Psychol. Rev.* 2011, *14*(1), 1–27. <https://doi.org/10.1007/s10567-010-0080-1>.
7. Stein, A.; Pearson, R. M.; Goodman, S. H.; Rapa, E.; Rahman, A.; McCallum, M.; et al. Effects of perinatal mental disorders on the fetus and child. *Lancet* 2014, *384*(9956), 1800–1819. [https://doi.org/10.1016/S0140-6736\(14\)61277-0](https://doi.org/10.1016/S0140-6736(14)61277-0).
8. World Health Organization. *Global Strategy for Infant and Young Child Feeding*; WHO: Geneva, 2003.
9. Victora, C. G.; Bahl, R.; Barros, A. J. D.; França, G. V. A.; Horton, S.; Krasevec, J.; et al. Breastfeeding in the 21st century: epidemiology, mechanisms, and lifelong



- effect. *Lancet* 2016, 387(10017), 475–490. [https://doi.org/10.1016/S0140-6736\(15\)01024-7](https://doi.org/10.1016/S0140-6736(15)01024-7).
10. Horta, B. L.; Victora, C. G. *Long-Term Effects of Breastfeeding: A Systematic Review*; World Health Organization: Geneva, 2013.
 11. Chowdhury, R.; Sinha, B.; Sankar, M. J.; Taneja, S.; Bhandari, N.; Rollins, N.; et al. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. *Acta Paediatr.* 2015, 104(S467), 96–113. <https://doi.org/10.1111/apa.13102>.
 12. Stuebe, A. The risks of not breastfeeding for mothers and infants. *Rev. Obstet. Gynecol.* 2009, 2(4), 222–231. <https://doi.org/10.3909/riog0093>.
 13. UNICEF. Infant and Young Child Feeding. <https://data.unicef.org/topic/nutrition/infant-and-young-child-feeding/> (accessed 2025-11-10).
 14. Dias, C. C.; Figueiredo, B. Breastfeeding and depression: a systematic review of the literature. *J. Affect. Disord.* 2015, 171, 142–154. <https://doi.org/10.1016/j.jad.2014.09.022>.
 15. Watkins, S.; Meltzer-Brody, S.; Zolnoun, D.; Stuebe, A. Early breastfeeding experiences and postpartum depression. *Obstet. Gynecol.* 2011, 118(2 Pt 1), 214–221. <https://doi.org/10.1097/AOG.0b013e318224x1f3>.
 16. Ystrom, E. Breastfeeding cessation and symptoms of anxiety and depression: a longitudinal cohort study. *BMC Pregnancy Childbirth* 2012, 12, 36. <https://doi.org/10.1186/1471-2393-12-36>.
 17. Henderson, J. J.; Evans, S. F.; Straton, J. A.; Priest, S. R.; Hagan, R. Impact of postnatal depression on breastfeeding duration. *Birth* 2003, 30(3), 175–180. <https://doi.org/10.1046/j.1523-536X.2003.00211.x>.
 18. Wang, Y.; Mao, K.; Chu, M.; et al. Perinatal maternal factors influencing postpartum feeding practices at six weeks. *BMC Pregnancy Childbirth* 2024, 24, 514. <https://doi.org/10.1186/s12884-024-06465-4>.
 19. Field, T. Postpartum depression effects on early interactions, parenting, and safety practices: a review. *Infant Behav. Dev.* 2010, 33(1), 1–6. <https://doi.org/10.1016/j.infbeh.2009.10.003>.
 20. Dennis, C. L.; McQueen, K. The relationship between infant-feeding outcomes and postpartum depression: a qualitative systematic review. *Pediatrics* 2009, 123(4), e736–e751. <https://doi.org/10.1542/peds.2008-1629>.
 21. Dewey, K. G. Maternal and fetal stress are associated with impaired lactogenesis in humans. *J. Nutr.* 2001, 131(11), 3012S–3015S. <https://doi.org/10.1093/jn/131.11.3012S>.
 22. Groer, M. W.; Davis, M. W. Cytokines, infections, stress, and dysphoric moods in breastfeeders and formula feeders. *J. Obstet. Gynecol. Neonatal Nurs.* 2006, 35(5), 599–607. <https://doi.org/10.1111/j.1552-6909.2006.00079.x>.
 23. Castaldo, M.; Mirisola, C.; Costanzo, G.; Marrone, R. Multidisciplinary study on immigrants African and Asian children's health: socio-cultural factors influencing breastfeeding. *Curr. Womens Health Rev.* 2017, 13(1), 58–65. <https://doi.org/10.2174/1573404812666160627114141>.
 24. Xia, M.; Luo, J.; Wang, J.; Liang, Y. Association between breastfeeding and postpartum depression: a meta-analysis. *J. Affect. Disord.* 2022, 308, 512–519. <https://doi.org/10.1016/j.jad.2022.03.037>.
 25. Gila-Diaz, A.; Carrillo-Vico, A.; Sanchez-Franco, C.; Arribas, S. M.; Ramiro-Cortijo, D. Breastfeeding self-efficacy: concept, influencing factors, and association with breastfeeding duration. *Nutrients* 2021, 13(5), 1476. <https://doi.org/10.3390/nu13051476>.
 26. Riggs, K. W.; Rissi, T.; Rooks, J. Perceived insufficient milk supply: a developmental perspective. *J. Hum. Lact.* 2007, 23(3), 240–247. <https://doi.org/10.1177/0890334407301325>.
 27. Field, T. Postpartum depression and the mother–infant relationship. *Int. J. Behav. Dev.* 2018, 42(3), 362–371. <https://doi.org/10.1177/0165025417712314>.
 28. Borra, C.; Iacovou, M.; Sevilla, A. New evidence on breastfeeding and postpartum depression: the importance of understanding women's intentions. *Matern. Child Health J.* 2015, 19(4), 897–907. <https://doi.org/10.1007/s10995-014-1612-8>.
 29. Brown, A.; Rance, J. Breastfeeding and maternal mental health: a systematic review and meta-analysis. *Public Health Nutr.* 2016, 19(11), 2033–2044. <https://doi.org/10.1017/S1368980015003219>.
 30. Brown, A.; Rance, J.; Warren, L. An exploration of maternal expectations of breastfeeding. *Midwifery* 2014, 30(3), 326–334. <https://doi.org/10.1016/j.midw.2013.06.012>.
 31. Gorman, L. L.; Madansky, D.; Vale, S.; Calfas, K.; Craig, S. J. Postpartum depression is not associated with breastfeeding duration or exclusivity: a longitudinal study in a multiethnic sample of women. *Arch. Womens Ment. Health* 2004, 7(2), 61–69. <https://doi.org/10.1007/s00737-003-0039-2>.



32. Figueiredo, B.; Dias, C. C.; Brandão, S.; Canário, C.; Nunes-Costa, R. Breastfeeding and postpartum depression: state of the art review. *J. Pediatr. (Rio J.)* 2013, 89(4), 332–338. <https://doi.org/10.1016/j.jped.2013.01.001>.
33. Fairlie, T. G.; Gillman, M. W.; Rich-Edwards, J. W. High pregnancy-related anxiety and prenatal depressive symptoms as predictors of intention to breastfeed and breastfeeding initiation. *J. Womens Health (Larchmt.)* 2009, 18(7), 945–953. <https://doi.org/10.1089/jwh.2008.0998>.
34. Dennis, C. L.; Faux, S. Development and psychometric testing of the Breastfeeding Self-Efficacy Scale. *Res. Nurs. Health* 1999, 22(5), 399–409. [https://doi.org/10.1002/\(SICI\)1098-240X\(199910\)22:5<399::AID-NUR6>3.0.CO;2-4](https://doi.org/10.1002/(SICI)1098-240X(199910)22:5<399::AID-NUR6>3.0.CO;2-4).
35. Tuthill, E. L.; McGrath, J. M.; Young, S. L. Breastfeeding self-efficacy: a critical review of available instruments. *J. Hum. Lact.* 2016, 32(1), 35–45. <https://doi.org/10.1177/0890334415599533>.
36. Kingston, D.; McDonald, S.; Austin, M. P.; Tough, S. Association of antenatal depression and anxiety with infant development: a systematic review. *JAMA Psychiatry* 2015, 72(9), 915–924. <https://doi.org/10.1001/jamapsychiatry.2015.1079>.
37. Kingston, D.; Kehler, H.; Austin, M. P.; Mughal, M. K.; Wajid, A.; Vermeyden, L.; et al. Trajectories of maternal depressive symptoms during pregnancy and associations with child development at age 5 years. *BJOG* 2018, 125(7), 935–944. <https://doi.org/10.1111/1471-0528.15039>.
38. Jones, T. L.; Prinz, R. J. Potential roles of parental self-efficacy in parent and child adjustment: a review. *Clin. Psychol. Rev.* 2005, 25(3), 341–363. <https://doi.org/10.1016/j.cpr.2004.12.004>.
39. Dennis, C. L. The effect of peer support on postpartum depression: a pilot randomized controlled trial. *Can. J. Psychiatry* 2003, 48(2), 115–124. <https://doi.org/10.1177/070674370304800207>.
40. Gao, L. L.; Chan, S. W.; Mao, Q. Depression, perceived stress, and social support among first-time Chinese mothers and fathers in the postpartum period. *Res. Nurs. Health* 2009, 32(1), 50–58. <https://doi.org/10.1002/nur.20306>.
41. Leahy-Warren, P.; McCarthy, G.; Corcoran, P. First-time mothers: social support, maternal parental self-efficacy and postnatal depression. *J. Clin. Nurs.* 2012, 21(3–4), 388–397. <https://doi.org/10.1111/j.1365-2702.2011.03701.x>.
42. Negron, R.; Martin, A.; Almog, M.; Balbierz, A.; Howell, E. A. Social support during the postpartum period: mothers' views on needs, expectations, and mobilization of support. *Matern. Child Health J.* 2013, 17(4), 616–623. <https://doi.org/10.1007/s10995-012-1037-4>.
43. O'Brien, M.; Peyton, V. Parenting attitudes and marital intimacy: an initial investigation of mediating processes. *J. Fam. Psychol.* 2002, 16(4), 636–645. <https://doi.org/10.1037/0893-3200.16.4.636>.
44. Razurel, C.; Kaiser, B.; Sellenet, C.; Epiney, M. Relation between perceived stress, social support, and coping strategies and maternal well-being: a review of the literature. *Women Health* 2013, 53(1), 74–99. <https://doi.org/10.1080/03630242.2012.732681>.
45. Kendall-Tackett, K. A new paradigm for depression in new mothers: the central role of inflammation and how breastfeeding and anti-inflammatory treatments protect maternal mental health. *Int. Breastfeed. J.* 2007, 2, 6. <https://doi.org/10.1186/1746-4358-2-6>.
46. Mezzacappa, E. S.; Katkin, E. S. Breastfeeding is associated with reduced perceived stress and negative mood in mothers. *Health Psychol.* 2002, 21(2), 187–193. <https://doi.org/10.1037/0278-6133.21.2.187>.
47. Doan, T.; Gay, C. L.; Kennedy, H. P.; Newman, J.; Lee, K. A. Nighttime breastfeeding behavior is associated with more nocturnal sleep among first-time mothers at one month postpartum. *J. Clin. Sleep Med.* 2014, 10(3), 313–319. <https://doi.org/10.5664/jcsm.3522>.
48. Kendall-Tackett, K. Breastfeeding and the sexual abuse survivor. *J. Hum. Lact.* 1998, 14(2), 125–130; quiz 131–133. <https://doi.org/10.1177/089033449801400212>.
49. Beck, C. T.; Records, K.; Rice, M. Further development of the postpartum depression predictors inventory-revised. *J. Obstet. Gynecol. Neonatal Nurs.* 2006, 35(6), 735–745. <https://doi.org/10.1111/j.1552-6909.2006.00094.x>.
50. Howell, E. A.; Mora, P.; Leventhal, H. Correlates of early postpartum depressive symptoms. *Matern. Child Health J.* 2006, 10(2), 149–157. <https://doi.org/10.1007/s10995-005-0038-4>.
51. Field, T. Postpartum depression effects on early interactions, parenting, and safety practices: A



- review. *Infant Behav. Dev.* 2010, 33(1), 1–6. <https://doi.org/10.1016/j.infbeh.2009.10.005>.
52. Slomian, J.; Honvo, G.; Emonts, P.; Reginster, J.-Y.; Bruyère, O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health (Lond.)* 2019, 15, 1745506519844044. <https://doi.org/10.1177/1745506519844044>.
53. Murray, L.; Cooper, P. J. Effects of postnatal depression on infant development. *Arch. Dis. Child.* 1997, 77(2), 99–101. <https://doi.org/10.1136/adc.77.2.99>.
54. Stewart, R. C. Maternal depression and infant growth—A review of recent evidence. *Matern. Child Nutr.* 2007, 3(2), 94–107. <https://doi.org/10.1111/j.1740-8709.2007.00088.x>.
55. Grote, N. K.; Bridge, J. A.; Gavin, A. R.; Melville, J. L.; Iyengar, S.; Katon, W. J. Depression during pregnancy and the risk of preterm birth, low birth weight, and intrauterine growth restriction: A meta-analysis. *Arch. Gen. Psychiatry* 2010, 67(10), 1012–1024. <https://doi.org/10.1001/archgenpsychiatry.2010.111>.
56. O'Hara, M. W.; McCabe, J. E. Postpartum depression: Current status and future directions. *Annu. Rev. Clin. Psychol.* 2013, 9, 379–407. <https://doi.org/10.1146/annurev-clinpsy-050212-185612>.
57. Letourneau, N. L.; Dennis, C.-L.; Cosic, N.; Linder, J. The effect of perinatal depression treatment for mothers on parenting and child development: A systematic review. *Depress. Anxiety* 2017, 34(10), 928–966. <https://doi.org/10.1002/da.22687>.
58. Shorey, S.; Chan, S. W.; Chong, Y. S.; He, H. G. Predictors of maternal parental self-efficacy among primiparas in the early postpartum period. *West. J. Nurs. Res.* 2015, 37(12), 1604–1622. <https://doi.org/10.1177/0193945914537724>.
59. Kroenke, K.; Spitzer, R. L.; Williams, J. B. W. The PHQ-9: Validity of a brief depression severity measure. *J. Gen. Intern. Med.* 2001, 16(9), 606–613. <https://doi.org/10.1046/j.1525-1497.2001.016009606.x>.
60. Leahy-Warren, P.; McCarthy, G.; Corcoran, P. First-time mothers: Social support, maternal parental self-efficacy and postnatal depression. *J. Clin. Nurs.* 2012, 21(3–4), 388–397. <https://doi.org/10.1111/j.1365-2702.2011.03701.x>.
61. Field, T. Postpartum depression effects on early interactions, parenting, and safety practices: A review. *Infant Behav. Dev.* 2010, 33(1), 1–6. <https://doi.org/10.1016/j.infbeh.2009.10.005>.
62. Slomian, J.; Honvo, G.; Emonts, P.; Reginster, J.-Y.; Bruyère, O. Consequences of maternal postpartum depression: A systematic review of maternal and infant outcomes. *Women's Health (Lond.)* 2019, 15, 1745506519844044. <https://doi.org/10.1177/1745506519844044>.
63. Murray, L.; Cooper, P. J. Effects of postnatal depression on infant development. *Arch. Dis. Child.* 1997, 77(2), 99–101. <https://doi.org/10.1136/adc.77.2.99>.
64. Stewart, R. C. Maternal depression and infant growth—A review of recent evidence. *Matern. Child Nutr.* 2007, 3(2), 94–107. <https://doi.org/10.1111/j.1740-8709.2007.00088.x>.
65. Grote, N. K.; Bridge, J. A.; Gavin, A. R.; Melville, J. L.; Iyengar, S.; Katon, W. J. Depression during pregnancy and adverse birth outcomes: A meta-analysis. *Arch. Gen. Psychiatry* 2010, 67(10), 1012–1024. <https://doi.org/10.1001/archgenpsychiatry.2010.111>.
66. O'Hara, M. W.; McCabe, J. E. Postpartum depression: Current status and future directions. *Annu. Rev. Clin. Psychol.* 2013, 9, 379–407. <https://doi.org/10.1146/annurev-clinpsy-050212-185612>.
67. Letourneau, N. L.; Dennis, C.-L.; Cosic, N.; Linder, J. The effect of perinatal depression treatment for mothers on parenting and child development: A systematic review. *Depress. Anxiety* 2017, 34(10), 928–966. <https://doi.org/10.1002/da.22687>.
68. Shorey, S.; Chan, S. W.; Chong, Y. S.; He, H. G. Predictors of maternal parental self-efficacy among primiparas in the early postpartum period. *West. J. Nurs. Res.* 2015, 37(12), 1604–1622. <https://doi.org/10.1177/0193945914537724>.
69. Bandura, A. *Self-Efficacy: The Exercise of Control*; W. H. Freeman: New York, 1997.
70. Leahy-Warren, P.; McCarthy, G.; Corcoran, P. First-time mothers: Social support, maternal parental self-efficacy and postnatal depression. *J. Clin. Nurs.* 2012, 21(3–4), 388–397. <https://doi.org/10.1111/j.1365-2702.2011.03701.x>.
71. Teti, D. M.; Gelfand, D. M. Behavioral competence among mothers of infants in the first year: The mediational role of maternal self-efficacy. *Child Dev.* 1991, 62(5), 918–929. <https://doi.org/10.2307/1131143>.



72. Cutrona, C. E.; Troutman, B. R. Social support, infant temperament, and parenting self-efficacy: A mediational model of postpartum depression. *Child Dev.* 1986, 57(6), 1507–1518. <https://doi.org/10.2307/1130428>.
73. Dennis, C. L.; Ross, L. E. Women's perceptions of partner support and conflict in the development of postpartum depressive symptoms. *J. Adv. Nurs.* 2006, 56(6), 588–599. <https://doi.org/10.1111/j.1365-2648.2006.04059.x>.
74. Morrell, C. J.; Spiby, H.; Stewart, P.; Walters, S.; Morgan, A. Costs and effectiveness of community postnatal support workers: Randomised controlled trial. *BMJ* 2000, 321(7261), 593–598. <https://doi.org/10.1136/bmj.321.7261.593>.
75. Cankorur, V. S.; Abas, M.; Berksun, O.; Stewart, R. Social support and the incidence and persistence of depression between antenatal and postnatal examinations in Turkey: A cohort study. *BMJ Open* 2015, 5(4), e006456. <https://doi.org/10.1136/bmjopen-2014-006456>.
76. Dennis, C. L.; Letourneau, N. Global and relationship-specific perceptions of support and the development of postpartum depressive symptomatology. *Soc. Psychiatry Psychiatr. Epidemiol.* 2007, 42(5), 389–395. <https://doi.org/10.1007/s00127-007-0180-0>.
77. Kroemeke, A. Maternal postpartum depressive symptoms, perceived stress and social support from the partner: Validation of the Postpartum Social Support Questionnaire. *J. Reprod. Infant Psychol.* 2016, 34(4), 372–385. <https://doi.org/10.1080/02646838.2016.1171320>.
78. Ohara, M.; Okada, T.; Aleksic, B.; Morikawa, M.; Kubota, C.; Nakamura, Y.; et al. Social support helps protect against perinatal bonding failure and depression among mothers: A prospective cohort study. *Sci. Rep.* 2017, 7, 9546. <https://doi.org/10.1038/s41598-017-09449-6>.
79. Cutrona, C. E.; Suhr, J. A. Controllability of stressful events and satisfaction with spouse support behaviors. *Commun. Res.* 1992, 19(2), 154–174. <https://doi.org/10.1177/009365092019002002>.
80. Razurel, C.; Kaiser, B.; Sellenet, C.; Epiney, M. Relation between perceived stress, social support, and coping strategies and maternal well-being: A review of the literature. *Women Health* 2013, 53(1), 74–99. <https://doi.org/10.1080/03630242.2012.732681>.
81. Zubaran, C.; Foresti, K. The correlation between postpartum depression and health status. *Matern. Child Health J.* 2011, 15(6), 751–757. <https://doi.org/10.1007/s10995-010-0636-3>.
82. Logsdon, M. C.; Usui, W.; Nering, M. Social support and postpartum depression among adolescent mothers. *J. Obstet. Gynecol. Neonatal Nurs.* 2009, 38(5), 494–502. <https://doi.org/10.1111/j.1552-6909.2009.01048.x>.
83. Scrafford, C. G.; Berhane, Y.; Tessema, F.; et al. Maternal depressive symptoms are negatively associated with child development in rural Ethiopia: A cross-sectional study. *Matern. Child Health J.* 2021, 25(1), 95–104. <https://doi.org/10.1007/s10995-020-03055-6>.
84. Surkan, P. J.; Kennedy, C. E.; Hurley, K. M.; Black, M. M. Maternal depression and early childhood growth in developing countries: Systematic review and meta-analysis. *Bull. World Health Organ.* 2011, 89(8), 608–615. <https://doi.org/10.2471/BLT.11.088187>.
85. Rahman, A.; Bunn, J.; Lovel, H.; Creed, F. Maternal depression increases infant risk of diarrhoeal illness: A cohort study. *Arch. Dis. Child.* 2007, 92(1), 24–28. <https://doi.org/10.1136/adc.2005.082719>.
86. Walker, S. P.; Wachs, T. D.; Grantham-McGregor, S.; et al. Inequality in early childhood: Risk and protective factors for early child development. *Lancet* 2011, 378(9799), 1325–1338. [https://doi.org/10.1016/S0140-6736\(11\)60555-2](https://doi.org/10.1016/S0140-6736(11)60555-2).
87. Riaz, A.; Caine, E. D. Depression in primary care settings in Pakistan: Burden and management. *Int. Rev. Psychiatry* 2009, 21(5), 451–457. <https://doi.org/10.1080/09540260903081293>.
88. Rahman, A.; Iqbal, Z.; Harrington, R. Life events, social support and depression in childbirth: Perspectives from a rural community in the developing world. *Psychol. Med.* 2003, 33(7), 1161–1167. <https://doi.org/10.1017/S0033291703008286>.
89. Fisher, J.; Mello, M. C.; Patel, V.; et al. Prevalence and determinants of common perinatal mental disorders in women in low- and lower-middle-income countries: A systematic review. *Bull. World Health Organ.* 2012, 90(2), 139G–149G. <https://doi.org/10.2471/BLT.11.091850>.
90. Nasreen, H. E.; Kabir, Z. N.; Forsell, Y.; Edhborg, M. Prevalence and associated factors of depressive and anxiety symptoms during pregnancy: A



- population-based study in rural Bangladesh. *BMC Womens Health* 2011, 11, 22. <https://doi.org/10.1186/1472-6874-11-22>.
91. Goyal, D.; Gay, C.; Lee, K. A. How much does low socioeconomic status increase the risk of prenatal and postpartum depressive symptoms in first-time mothers? *Womens Health Issues* 2010, 20(2), 96–104. <https://doi.org/10.1016/j.whi.2009.11.003>.
92. Grote, N. K.; Katon, W. J.; Russo, J. E.; Lohr, M. J.; Curran, M.; Galvin, E.; et al. Collaborative care for perinatal depression in socioeconomically disadvantaged women: A randomized trial. *Depress. Anxiety* 2015, 32(11), 821–834. <https://doi.org/10.1002/da.22333>.
93. Lancaster, C. A.; Gold, K. J.; Flynn, H. A.; Yoo, H.; Marcus, S. M.; Davis, M. M. Risk factors for depressive symptoms during pregnancy: A systematic review. *Am. J. Obstet. Gynecol.* 2010, 202(1), 5–14. <https://doi.org/10.1016/j.ajog.2009.09.007>.
94. O'Hara, M. W.; Swain, A. M. Rates and risk of postpartum depression—A meta-analysis. *Int. Rev. Psychiatry* 1996, 8(1), 37–54. <https://doi.org/10.3109/09540269609037816>.
95. Arifin, S. R. M.; Cheyne, H.; Maxwell, M. Review of the prevalence of postnatal depression across cultures. *AIMS Public Health* 2018, 5(3), 260–295. <https://doi.org/10.3934/publichealth.2018.3.260>.
96. Halbreich, U.; Karkun, S. Cross-cultural and social diversity of prevalence of postpartum depression and depressive symptoms. *J. Affect. Disord.* 2006, 91(2–3), 97–111. <https://doi.org/10.1016/j.jad.2005.12.051>.
97. Lau, Y.; Htun, T. P.; Kwong, H. K. D. Sociodemographic, obstetric characteristics, antenatal morbidities, and perinatal depressive symptoms: A three-wave prospective study. *PLoS One* 2018, 13(2), e0188365. <https://doi.org/10.1371/journal.pone.0188365>.
98. Shorey, S.; Chee, C. Y. I.; Ng, E. D.; Chan, Y. H.; Tam, W. W. S.; Chong, Y. S. Prevalence and incidence of postpartum depression among healthy mothers: A systematic review and meta-analysis. *Psychiatry Res.* 2018, 261, 543–552. <https://doi.org/10.1016/j.psychres.2017.12.043>.
99. Upadhyay, R. P.; Chowdhury, R.; Salehi, A.; Sarkar, K.; Singh, S. K.; Sinha, B.; et al. Postpartum depression in India: A systematic review and meta-analysis. *Bull. World Health Organ.* 2017, 95(10), 706–717C. <https://doi.org/10.2471/BLT.17.192237>.