

DYSPHORIC MILK EJECTION REFLEX [D-MER] AND ITS IMPLICATIONS FOR POSTPARTUM MATERNAL MENTAL HEALTH: A LITERATURE REVIEW

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REVIEW

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ABSTRACT

Introduction: Dysphoric Milk Ejection Reflex (D-MER) is a breastfeeding-related phenomenon characterized by brief episodes of negative emotional responses occurring immediately before or during milk ejection. Although it arises from normal neuroendocrine changes in the postpartum period, D-MER may significantly affect maternal mental health and breastfeeding continuation if unrecognized or inadequately managed.

Methods: This article is a narrative literature review of published studies on D-MER, postpartum mental health, and breastfeeding. Relevant articles were identified from electronic databases and analyzed to describe clinical characteristics, underlying mechanisms, and implications for mental well-being.

Results: The reviewed literature indicates that D-MER is marked by transient dysphoric symptoms, including sadness, anxiety, irritability, and, in some cases, suicidal ideation, which typically resolve within 10-15 minutes after milk ejection. Evidence suggests that D-MER is associated with complex biopsychosocial mechanisms, particularly involving dopamine fluctuations and oxytocin-related neuroendocrine pathways that influence mood regulation and stress reactivity.

Discuss: These symptoms may negatively impact the breastfeeding experience and contribute to early weaning. D-MER should be distinguished from postpartum depression, as its symptoms are reflexive, short-lived, and temporally linked to breastfeeding outcomes. D-MER represents a distinct postpartum mental health concern requiring increased awareness among healthcare providers.

Conclusion: Early identification and appropriate support may prevent more severe psychological complications. Further research is needed to clarify its mechanisms and establish evidence-based management strategies.

Keywords: postpartum, mental health, dysphoric milk ejection reflex [D-MER].

Article History:

Received: January 14, 2026
Accepted: February 12, 2026
Published: March 31, 2026

Cite this as: Wijaya, D.A.S., Nafi'ati, D.N. Dysphoric Milk Ejection Reflex [D-MER] and Its Implications for Postpartum Maternal Mental Health: a Literature Review. *Journal of Psychiatry Psychology and Behavioral Research*; 2026.7:1. p14-18.

INTRODUCTION

The postpartum period, or puerperium, is defined as the 6–8-week window following childbirth during which a woman's reproductive organs return to their pre-pregnancy state.¹ This stage represents a critical transition for mothers and families as they adjust to new parental roles.² Psychologically, postpartum women typically progress through three phases: the *taking-in* period (psychological honeymoon), the *taking-hold* period (assuming responsibility), and the *letting-go* period.^{3,4} During the letting-go phase, mothers are particularly vulnerable to

mood fluctuations, stress, and sleep disturbances, especially in the absence of adequate social or professional support.^{2,4}

Mental health issues during the postpartum period constitute a major global health concern. WHO (World Health Organization) data indicate that approximately 19.8% of postpartum women in developing countries experience mental health disorders.⁵ Common conditions include the “baby blues”, postpartum depression (PPD), and postpartum psychosis.⁶ These conditions are associated with serious outcomes, including suicidal ideation and increased maternal and infant mortality.^{5,6} Within this

broader context of postpartum mental health, the Dysphoric Milk Ejection Reflex (D-MER) has emerged as a specific but frequently misunderstood condition.^{7,8}

D-MER is characterized by a sudden onset of dysphoria, ranging from mild sadness to intense negative emotions and, in some cases, suicidal ideation, that occurs immediately during the milk ejection reflex.^{9,7} Symptoms typically appear seconds after breastfeeding initiation and resolve spontaneously within 10-15 minutes or after milk ejection.^{9,10} In addition to emotional distress, a mother may experience physical symptoms such as nausea, palpitations, chills, and an uncomfortable sensation in the solar plexus.¹⁰ Current evidence suggests a prevalence of approximately 9.1% among postpartum breastfeeding mothers.¹¹

It is critical to distinguish D-MER from generalized anxiety or postpartum depression.^{3,12} Unlike PPD, which is characterized by persistent depressive symptoms and functional impairment, D-MER is a transient, reflexive phenomenon tightly linked to breastfeeding physiology.¹² Nevertheless, the intensity of dysphoric symptoms often leads to misinterpretation by both mother and healthcare providers, increasing the risk of misdiagnosis, inappropriate treatment, and premature breastfeeding cessation.^{12,13} Although D-MER may coexist with depression or anxiety, it is increasingly understood as a distinct bio-psycho-social-cultural phenomenon associated with neuroendocrine fluctuation involving oxytocin and dopamine.¹²⁻¹⁴

For many women, breastfeeding is deeply intertwined with maternal identity and self-efficacy.⁵ Consequently, the distress associated with D-MER may evoke feelings of incompetence, shame, and fear of one's own bodily responses, negatively affecting the mother-infant relationship and increasing the likelihood of early weaning.

METHOD

This study employed a narrative literature review to examine the mental health implications of D-MER in postpartum mothers. A literature search was conducted using PubMed, Wiley Online Library, and Frontiers databases for publications from 2011 to 2023. Search terms included “*Postpartum*”, “*Mental health*”, and “*Dysphoric Milk Ejection Reflex (D-MER)*”.

Peer-reviewed articles, case reports, and clinical studies addressing the prevalence, biopsychological mechanisms, or management of D-MER were included. Non-peer-reviewed sources and publications outside the specified timeframe were excluded. A total of 14 relevant articles were selected and narratively synthesized, focusing on D-MER, proposed dopamine and oxytocin-related mechanisms, and reported management strategies.

RESULT

Dysphoric Milk Ejection Reflex (D-MER)

Dysphoric Milk Ejection Reflex (D-MER) is identified in the literature as a breastfeeding-related condition in which mothers experience sudden negative emotional responses, ranging from sadness to suicidal ideation, occurring specifically during the milk ejection reflex. A 2019 study reported a prevalence of approximately 9.1% among postpartum breastfeeding mothers. Although an initial clinical observation was noted in 2007, the first published

case report appeared in 2010.⁸

Findings from multiple studies indicate that D-MER symptoms exhibit a consistent pattern across affected individuals. Emotional symptoms included sadness, anxiety, fear, irritability, frequent crying, feelings of despair, and low self-worth. Physical symptoms reported in the literature included nausea, shills, palpitation, and an uncomfortable sensation localized around the solar plexus.^{9,11,8,12,10} These symptoms typically appear within seconds of breastfeeding initiation and resolve spontaneously within approximately 10-15 minutes, generally coinciding with the completion of milk ejection.^{9,10}

Clinical history-taking documented that a subset of mothers experienced suicidal ideation specifically during D-MER episodes. Several studies also reported an association between D-MER and altered breastfeeding behaviors, including reduced frequency of direct breastfeeding and consideration of early weaning prior to six months postpartum.^{9,4,10}

Findings further indicated that D-MER symptoms were frequently confused with postpartum depression or anxiety disorder due to overlapping emotional features. However, the reviewed literature consistently described D-MER episodes as brief, episodic, and temporally linked to milk ejection, distinguishing them from persistent mood disorders. Comorbidity with depression or anxiety was reported in some cases. A recent study by Uslu and Serena (2023) also reported associations between D-MER and hormonal, neurobiological, and sexually-related factors.^{2,11,10}

D-MER Biopsychology

The biological foundation of D-MER is rooted in the complex process of lactogenesis, which occurs in two distinct phases: differentiation, beginning at approximately 15-20 weeks of gestation and marked by the expansion of breast capacity to synthesize colostrum, and secretory activation, which begins 24-72 hours after delivery.^{1,2} During these phases, the anterior pituitary gland releases prolactin to stimulate alveolar cell secretion, while the posterior pituitary under hypothalamic control releases oxytocin to initiate the milk ejection reflex.^{3,4} This neuroendocrine reflex is triggered when intercostal-4 nerve signals respond to negative pressure from infant suction, prompting the hypothalamus to release oxytocin into the circulation within approximately one minute.^{5,4,3}

The literature presents two primary, contrasting mechanisms to explain the dysphoric symptoms observed during milk ejection. The first is the dopamine hypothesis, which is based on the reciprocal relationship between dopamine and prolactin. Under physiological conditions, a reduction in dopamine activity is required to permit prolactin release for milk production.^{6,7} In mothers experiencing D-MER, this reduction is proposed to result in a short-term absolute or relative dopamine deficit, temporally associated with the onset of dysphoric symptoms.⁷⁻⁹ The second proposed mechanism is the oxytocin hypothesis, which suggests that oxytocin itself may contribute to dysphoria due to its rapid release at the initiation of breastfeeding.⁶ Oxytocin is synthesized in the Paraventricular Nucleus (PVN) and released in limbic regions such as the amygdala, which are involved in emotional regulation.^{5,10} Although oxytocin is commonly

associated with calming and bonding effects, increasing activity with the neocortical limbic system, identified through limbic brain mapping, has been correlated with mood alteration and stress reactivity during the milk ejection reflex in mothers with D-MER.^{9,7}

Despite these proposed mechanisms, several aspects of the pathophysiology remain unresolved. There is ongoing debate over whether dopamine is directly involved in the milk ejection reflex, with some researchers arguing that dopamine primarily regulates prolactin rather than oxytocin, which directly mediates milk ejection.^{6,8} Additionally, it remains unclear whether dopamine neurons regulating prolactin secretion in the anterior pituitary operate in parallel with central dopaminergic pathways involved in emotional regulation or function independently.⁸ The potential role of glutamate activity within dopamine pathways has also been identified as a contributing factor, although its specific involvement in D-MER requires further investigation.^{7,11} These findings suggest that D-MER occurs in a part of the brain not under the mother's conscious control, making it an involuntary physiological event rather than a purely psychological one.¹⁰

Treatment Implications for D-MER

The management of D-MER remains clinically challenging due to its transient presentation, limited recognition, and the absence of standardized treatment guidelines. The available literature suggests that management strategies should prioritize supportive and non-pharmacological approaches, as most evidence is derived from descriptive studies, case reports, and clinical observations rather than randomized controlled trials.^{8,11,12,14}

Supportive and lifestyle-based interventions are consistently reported as first-line strategies. Behavioral modifications such as distraction during breastfeeding, improving sleep quality, optimizing nutrition, increasing fluid intake, regular physical activity, and reducing caffeine consumption are described as effective in alleviating symptom intensity.^{8,12} These interventions are low-risk and align with breastfeeding-supportive care principles. Creating a safe and comfortable breastfeeding environment characterized by trusted social support, reduced psychosocial stressors, and adequate rest may further reduce stress-related symptom exacerbation.^{8,14} Skin-to-skin contact and stress-relieving practices, such as oxytocin massage, have also been reported to be beneficial adjuncts.^{12,14}

Psychosocial interventions, including psychotherapy and structured education, are emphasized as essential components of D-MER management. Framing D-MER as a physiological reflex rather than a psychological weakness has been shown to reduce maternal guilt, anxiety, and self-blame.^{8,12} Education and lactation counseling provided by trained healthcare professionals, ideally initiated during antenatal care and continued postpartum, facilitate early identification, improve maternal coping mechanisms, and help prevent premature cessation of breastfeeding.^{8,14} Complementary therapies such as music therapy and aromatherapy may further assist in stress modulation, although empirical evidence remains limited.^{11,12}

Pharmacological intervention aimed at stabilizing dopamine levels, including the use of dopamine reuptake inhibitors such as bupropion at minimal doses, has been

reported to reduce or eliminate dysphoric symptoms in selected cases.^{8,11} However, these approaches should be considered experimental. The potential transfer of pharmacological agents into breast milk, limited safety data for infants, and the absence of large-scale clinical trials necessitate cautious use. Pharmacological treatment should be reserved for severe or refractory cases and initiated only under strict supervision by a psychiatrist or mental health specialist following a comprehensive risk-benefit assessment.^{11,12,14}

Overall, the literature supports a multidisciplinary bio-psycho-social approach to D-MER management. While supportive, educational, and psychosocial strategies are currently the cornerstone of care, further research is required to establish evidence-based pharmacological protocols and to clarify long-term maternal and infant outcomes. Increasing clinical awareness of D-MER is critical to prevent misdiagnosis as postpartum depression and to ensure appropriate, compassionate breastfeeding support.^{8,12,14}

DISCUSS

The findings of this literature review characterized D-MER as a complex bio-psycho-social-cultural phenomenon rather than a purely psychological or physiological disorder. Unlike typical postpartum mood disturbances, D-MER is explicitly linked to the involuntary neuroendocrine reflex of milk expulsion. This distinction is clinically significant because the associated symptoms are believed to originate in neural pathways beyond the mother's conscious control, suggesting that behavioral "willpower" alone is insufficient for symptom management.

A critical synthesis of the literature reveals ongoing tension between two primary hormonal explanations. The dopamine hypothesis suggests that a sudden, short-term reduction in dopamine required for prolactin release triggers dysphoric symptoms. In contrast, the oxytocin hypothesis proposes that the rapid release of oxytocin at the onset of breastfeeding activates limbic structures, including the amygdala, which are involved in fear processing and stress reactivity. Taken together, these findings suggest that D-MER reflects a transient neurobiological mismatch during the milk-ejection reflex, influencing mood and emotion regulation independently of the mother's actual feelings toward her infant.

One of the most critical clinical challenges identified in the literature is the frequent misinterpretation of D-MER as postpartum depression (PPD) or generalized anxiety. Because D-MER can involve intense negative emotions, including suicidal ideation, it may be mistaken for a major depressive episode. However, a key distinguishing feature is the temporal pattern of symptoms: D-MER episodes are brief, appearing within seconds of milk *let-down* and resolving within 10-15 minutes.

Misdiagnosing D-MER as PPD carries several risks. First, mothers may be directed toward inappropriate clinical pathways designed for persistent mood disorders rather than a transient physiological reflex. Second, the inability to reconcile the desire to care for an infant with recurrent dysphoric episodes may contribute to shame, feelings of incompetence, and loss of maternal autonomy. Third, the psychological burden associated with these experiences may lead to unplanned early weaning, often before the

recommended six months, as mothers attempt to avoid repeated episodes of distress.

For healthcare professionals, particularly midwives, nurses, and lactation counselors, these findings underscore the importance of early identification and targeted history taking. While D-MER may coexist with postpartum depression or anxiety, it represents a distinct clinical phenomenon requiring a tailored, supportive approach.

Effective management should prioritize validating the mother's experience by framing D-MER as a physiological reflex rather than a personal failure. A multidisciplinary care model that integrates psychotherapy, lactation counseling, and family support is essential for creating a safe, supportive

breastfeeding environment. Pharmacological interventions, such as dopamine reuptake inhibitors, may be considered in severe or refractory cases; however, their use should remain cautious and strictly supervised due to potential transfer into breast milk and limited safety data.

In summary, D-MER represents a significant yet underrecognized maternal mental health condition that lies at the intersection of lactation physiology and emotional regulation. A clear clinical understanding of its transient and reflexive nature is essential to prevent misdiagnosis, reduce maternal distress, and support sustained breastfeeding.

CONCLUSION

The postpartum period represents a clinical transition during which mothers are particularly vulnerable to specific mental health disturbances, including those related to breastfeeding. This review highlights D-MER as a distinct and transient condition that affects a subset of postpartum mothers and is characterized by the sudden onset of dysphoria specifically during the milk ejection reflex. Unlike persistent mood disorders, S-MER symptoms are brief and temporally linked to lactation, typically resolving within minutes, which underscores the importance of accurate clinical differentiation from postpartum depression and generalized anxiety disorders.

Failure to recognize D-MER as a separate clinical phenomenon may result in misdiagnosis, unnecessary psychological burden, and inappropriate treatment pathways, potentially contributing to feelings of maternal inadequacy and early discontinuation of breastfeeding. The evidence reviewed indicates that management should prioritize non-pharmacological and supportive interventions aimed at reducing stress reactivity and improving maternal coping during breastfeeding. Although pharmacological options such as dopamine reuptake inhibitors have been reported in the literature, their use remains limited by concerns regarding infant exposure through breast milk and should only be considered under strict psychiatric supervision.

Midwives and maternal healthcare providers play a central role in early identification, education, and support for mothers experiencing D-MER. Enhanced training in lactation management and maternal mental health is essential to ensure timely recognition and appropriate guidance. Given that D-MER is a relatively newly described condition, continued research is necessary to clarify its underlying mechanisms, establish evidence-based management strategies, and improve clinical outcomes for both mothers and infants.

REFERENCES

1. American College of Obstetricians and Gynecologists. ACOG Committee Opinion No. 736: Optimizing Postpartum Care. *Obstet Gynecol.* 2018;131(5):e140-e150. doi:10.1097/AOG.0000000000002633
2. Perinatal Depression - National Institute of Mental Health (NIMH). <https://www.nimh.nih.gov/health/publications/perinatal-depression>. Accessed January 16, 2026.
3. World Health Organization. World Mental Health Report. <https://www.who.int/teams/mental-health-and-substance-use/world-mental-health-report>. Published 2022. Accessed January 16, 2026.
4. Schobinger E, Vanetti M, Ramelet AS, Horsch A. Social support needs of first-time parents in the early-postpartum period: A qualitative study. *Front Psychiatry.* 2022;13:1043990. doi:10.3389/fpsy.2022.1043990
5. Akkineni R, Rao A, Ganjekar S. "Guide for Integration of Perinatal Mental Health in Maternal and Child Health Services:" A Review. *Indian J Soc Psychiatry.* 2023;39(3):227. doi:10.4103/ijsp.ijsp_218_23
6. Sufianti, Nardina EA, Hutabarat ulietta, et al. *Asuhan Kebidanan pada Masa Nifas*. Vol 1. Medan: Yayasan Kita Menulis; 2021.
7. Biaggi A, Conroy S, Pawlby S, Pariante CM. Identifying the women at risk of antenatal anxiety and depression: A systematic review. *J Affect Disord.* 2016;191:62-77. doi:10.1016/j.jad.2015.11.014
8. Deif R, Burch EM, Azar J, et al. Dysphoric Milk Ejection Reflex: The Psychoneurobiology of the Breastfeeding Experience. *Front Glob Womens Health.* 2021;2. doi:10.3389/fgwh.2021.669826
9. Frawley T, McGuinness D. Dysphoric milk ejection reflex (D-MER) and its implications for mental health nursing. *Int J Ment Health Nurs.* 2023;32(2):620-626. doi:10.1111/inm.13115
10. Cox S. A case of dysphoric milk ejection reflex (D-MER). *Breastfeed Rev Prof Publ Nurs Mothers Assoc Aust.* 2010;18(1):16-18.
11. Skowrońska K, Chmura A, Baciur P, Środoń A. Dysphoric milk ejection reflex as a new diagnostic and therapeutic challenge in lactation care - literature review. *J Educ Health Sport.* 2022;12(11):48-53. doi:10.12775/JEHS.2022.12.11.006

12. Heise AM, Wiessinger D. Dysphoric milk ejection reflex: A case report. *Int Breastfeed J*. 2011;6(1):6. doi:10.1186/1746-4358-6-6
13. Howard LM, Khalifeh H. Perinatal mental health: a review of progress and challenges. *World Psychiatry Off J World Psychiatr Assoc WPA*. 2020;19(3):313-327. doi:10.1002/wps.20769
14. Uvnas-Moberg K, Kendall-Tackett K. The Mystery of D-MER: What Can Hormonal Research Tell Us About Dysphoric Milk-Ejection Reflex? *Clin Lact*. 2018;9(1):23-29. doi:10.1891/2158-0782.9.1.23.