

Dysphoric Milk Ejection Reflex (D-MER) Among Malaysian Mothers: Prevalence and Link to Mother-Infant Bonding

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Abstract

Background

Dysphoric Milk Ejection Reflex (D-MER) causes brief negative emotions immediately before or during milk let-down, yet prevalence and clinical support remain limited.

Objective

To determine D-MER prevalence among breastfeeding mothers in Malaysia and examine its association with mother-infant bonding and D-MER features.

Methods

In this cross-sectional study, Malaysian breastfeeding mothers were recruited by convenience sampling. D-MER and mother-infant bonding were assessed using the D-MER Questionnaire and Postpartum Bonding Questionnaire. Data from 218 mothers with a youngest child aged ≤ 2 years were analysed using descriptive and inferential statistics.

Results

D-MER prevalence was 17.0% (about 1 in 6 mothers). Impaired mother-infant bonding occurred in 16.5%. D-MER was associated with greater bonding difficulties, with affected mothers reporting poorer bonding.

Conclusion

D-MER affects a notable proportion of Malaysian breastfeeding mothers and is associated with poorer mother-infant bonding, highlighting the need for improved maternal health literacy and healthcare professional education.

Background

Responses to breastfeeding are unique and highly individualized [1]. Positive responses often involve peaceful and serene feelings during breastfeeding sessions, developing a deep and sentimental mother-infant connection as well as nurturing fondness, attachment and love [2]. These emotions are driven by oxytocin action, which produces a calming effect on the brains of breastfeeding mothers [2].

Some mothers develop negative breastfeeding emotions including anger towards themselves or others, low self-worth, and difficulties in developing mother-infant bonding [1]. These negative thoughts are thought to stem from dopamine suppression, a hormone frequently associated with mood, reward and

satisfaction [3]. Due to dopamine deficiency that occurs during the milk let-down reflex, mothers will develop negative feelings which may interrupt breastfeeding as they tend to wean off earlier [3].

D-MER, a term that is still emerging within scholarly discourse, refers to a condition experienced by lactating mothers [3]. It is characterized by unpleasant and intense negative emotions which include sadness, anxiety as well as over-sensitivity, and can last for 30 seconds to a few minutes [4]. This phenomenon is not just exclusive to direct breastfeeding; rather, it occurs when experiencing milk let-down which can be stimulated by various factors such as thinking of one's baby and pumping of the breast [1].

The mechanism behind D-MER emergence is hypothesised to stem from dopamine regulation in the mesocorticolimbic system [5]. There is negative feedback linked between dopamine and prolactin where dopamine levels in the blood influence levels of prolactin in the blood [5]. During breastfeeding, dopamine levels drop to a significant level, resulting in elevated prolactin levels to stimulate milk production for the newborn [4]. Consequently, negative view and poor judgement develop due to less dopaminergic stimulation [1, 6]. Hence, this theory relies on dopamine suppression that results in decreased pleasure and satisfaction [3].

At present, the prevalence of D-MER is found to be in the range of 5.9% to 27.7% in studies conducted in Japan, the United States, Germany, Croatia and Turkey [4, 7, 8]. The prevalence of this condition in Malaysia is not yet available. This is attributed to a myriad of aspects. For instance, lack of awareness and limited research prevent the expansion of knowledge regarding this matter on a large scale, leading to underreporting of D-MER [4]. Moreover, there are no defined diagnostic tools for the detection of D-MER and a lack of healthcare providers with sufficient skill in this field to assist breastfeeding mothers [4]. No epidemiological study has been conducted in Malaysia to discover D-MER prevalence, which can be seen as there are few papers on this issue even on an international scale [3].

The lack of studies on this issue also creates a barrier that limits deeper understanding and investigation of the phenomenon [3]. Even with current data provided on D-MER cases, most of them originate from personal blogs and online communities, which creates another challenge as these data can be unreliable due to self-diagnosis and confusion with postpartum depression or other mental conditions [9]. Furthermore, healthcare professionals are not familiar with this condition, signifying the gap in D-MER knowledge which limits their ability to provide necessary and complete support to breastfeeding mothers with D-MER [4].

Comprehensive exploration of D-MER is significant as its devastating emotional impacts on mothers make breastfeeding extremely challenging [3]. This is a critical issue because breastmilk equips infants with nutritional needs and early immunity [10]. Aside from providing infants with better resistance against various types of infections and diseases, breastmilk has a positive effect on cognitive and behavioural development [10, 11].

D-MERq is currently the most common and the only validated tool used to specifically identify D-MER by assessing experiences of breastfeeding mothers [4]. D-MERq is a self-administered questionnaire that consists of two parts [4]. The first section contains 10 questions capturing clinical features of D-MER such as intensity, duration and occurrence [4]. The second section is a 26-item scale to assess emotions related to D-MER [4]. Other studies depend on custom, self-developed symptom questionnaires or mental health surveys such as EPDS; these are merely to rule out unrelated postpartum conditions rather than for identifying D-MER [12].

Emotional attachment of a mother towards her infant(s) is referred to as mother-infant bonding [13]. Feeding method is reported to have an effect as breastfeeding mothers develop a much fonder connection with their newborns in comparison to formula milk-feeding mothers [14]. Breastfeeding mothers feel much calmer and less hostile as an effect of oxytocin acting as a love hormone [14, 15]. This hormone, which is produced during breastfeeding, assists in developing a deep bond between the mother and infant [15].

PBQ is a self-report 25-item questionnaire scored on a 6-point Likert scale (0 to 6) used as a tool to assess a mother's difficulty in bonding through the evaluation of her emotions, views, and responses to her infant [4]. Higher scores indicate more bonding difficulties while on the other hand lower scores mean lesser bonding difficulties [4]. PBQ is the gold standard for assessment of mother-infant bonding due to its superior quality in terms of internal consistency, design validity and reliability [16]. Its ease of administration makes it one of the most commonly used questionnaires as a screening tool for the assessment of mothers at risk of impaired bonding by healthcare providers such as midwives [16].

This study aims to discover the current situation of D-MER in Malaysia from aspects such as prevalence to ensure this condition is not undermined as a 'lesser' concern, discouraging breastfeeding mothers from voicing their opinions, as they perceive their experiences as personal problems rather than an issue that is affecting other breastfeeding women as well. In addition, this study will examine whether D-MER affects mother-infant bonding, which is essential for both the infant and the mother in numerous aspects.

Materials and Methods

Study Design and Sampling

A cross-sectional study was conducted to determine the prevalence of D-MER among breastfeeding mothers in Malaysia and assess their level of mother-infant bonding. Data collection was conducted from March 2026 to May 2026. The Raosoft sample size calculator was used to estimate the required sample size using a 90% confidence level and a 5% margin of error. The minimum required sample size was 272 participants, and the target sample size was increased to 299 to account for an anticipated 10% rate of incomplete responses. A total of 320 responses were received. Following eligibility screening, 102 responses from mothers who were more than two years postpartum were excluded in accordance

with the predefined eligibility criteria, resulting in a final sample of 218 participants. Convenience sampling was used to recruit participants due to its accessibility and feasibility within the study period.

Participants

Women aged 18 years or older who had a history of childbirth, had breastfed or were currently breastfeeding their infants, were within two years postpartum, and resided in Malaysia were eligible to participate. Participants were required to provide informed consent prior to participation. Transgender and nulliparous women were excluded from this study.

Data Collection

Demographic data such as age, feeding type, method of feeding, parity and age of youngest child were gathered from all participants. These data were utilized to provide extensive insights for better understanding the background and traits of the study population. A translated and validated version of two self-reported questionnaires was employed to collect data from participants [4]. The questionnaires were first translated to Malay by a certified translator. For content validity, it was established by a panel of four experts consisting of two academicians, one obstetrics & gynaecology consultant, and one lactation counsellor. Each item was rated for relevance on a scale of 1–4, where I-CVI (Item-Level Content Validity Index) for all items was 1, indicating high relevancies for all items. The Content Validity Ratio (CVR) of each item was also 1, demonstrating that all items should be retained with no need of revision or removal. Lastly, S-CVI/Ave (Scale-level Content Validity Index) was 1, meaning that all experts involved agreed that all items collectively represent the intended concept.

The first instrument, D-MERq, was used to evaluate the clinical features of D-MER experienced by breastfeeding mothers in Malaysia [4]. D-MERq is an established measurement tool, which comprises two parts, where the first part consists of 10 questions on the symptom components such as the duration and intensity while the second part consists of 26 items on emotions relating to D-MER [4]. D-MERq is a 5-scale rating questionnaire and provides beneficial insight into D-MER presence and characteristics, ranging from 1 (never) to 5 (almost always), where a higher score indicates higher D-MER severity [4].

The second instrument, PBQ, was used to assess the bonding strength of a mother with her infant through various aspects such as emotion, perception and reaction to the infant [4]. It consists of 25 items, where higher scores correspond to higher difficulty in bonding [4]. A score of 26 was used as a cut-off score where scores above this value were categorised as an impaired bond while scores below this value were categorised as a normal bond [16]. This questionnaire is essential in identifying mothers who struggle to form a bond with their infants.

The questionnaire consisted of three sections where the first section collected data on demographic information of the participants. The following section gathered responses on D-MER presence and

characteristics experienced by breastfeeding mothers in Malaysia through D-MERq. The third section employed PBQ to evaluate the level of mother-infant bonding of breastfeeding mothers. These data were analysed to discover the correlation between D-MER and mother-infant bonding. To ensure privacy and confidentiality of the participants, collected data were anonymised where necessary.

Since two different instruments were used in this study, reliability testing was conducted separately for each questionnaire. The D-MERq was used to assess the presence and characteristics of D-MER, whereas the PBQ was used to assess mother-infant bonding. Therefore, the items from both questionnaires were not combined into a single reliability analysis, as they measure different constructs. For the D-MERq, Cronbach's alpha was calculated for the emotion-related scale items, while the clinical characteristic items were analysed descriptively because they assess different aspects of D-MER such as intensity, onset, duration and breastfeeding cessation. For the PBQ, Cronbach's alpha was calculated for the total scale and its subscales.

Statistical Analysis

Data were analysed using IBM SPSS Statistics (version 30.0). Participants' demographic data such as age, method of feeding and type of feeding were summarized using frequencies and percentages as they were categorical data. Continuous data such as number of parities and age of youngest child were summarized by using median and interquartile range. The prevalence of D-MER in Malaysia and level of mother-infant bonding were summarized in a table where participants were categorized based on their D-MERq scores into either "experienced D-MER" or "do not experience D-MER". Participants were also classified into either "normal bond" ($PBQ \leq 25$) or "impaired bond" ($PBQ \geq 26$).

The internal consistency reliability of the Malay-translated questionnaires was assessed using Cronbach's alpha. Reliability analysis was performed separately for the D-MERq and PBQ because the instruments assess different constructs. The D-MERq emotion-related items were analysed to determine the reliability of the D-MER emotional scale, while the D-MERq clinical characteristic items were analysed descriptively. For the PBQ, Cronbach's alpha was calculated for the total 25-item scale and for each PBQ subscale. A Cronbach's alpha value of 0.70 or above was considered acceptable for internal consistency.

The clinical features of D-MERq were summarized using frequency and percentage, whereas PBQ individual item as well as subscale scores such as general, rejection and pathological anger, infant focused anxiety and incipient abuse were presented in a table. A normality test was also performed to assess the data distribution of the variable.

Spearman's rank correlation was utilized to assess the correlation between the presence of D-MER and mother-infant bonding levels. Due to the non-normally distributed continuous nature of the data, a non-parametric test, the Mann-Whitney U test, was employed to identify differences in mother-infant bonding level between two independent groups, which are mothers with D-MER and mothers without D-MER.

Results

Descriptive Analysis

Demographic Data

According to Table 1, a total of 320 responses were received. During eligibility screening, 102 respondents were excluded because they were more than two years postpartum and therefore did not meet the predefined eligibility criteria. The final analytical sample comprised 218 participants. The age of participants is in the range between 18 - 44 where the largest group were between 25 - 34 (67.0%). The median number of parities was 2.0 (IQR: 1.0 - 3.0), and the median number of living children was also 2.0 (IQR: 1.0 - 3.0). The median age of the youngest child was 7.5 months (IQR: 3.0 - 16.0).

Most participants fed their infants via exclusive breastfeeding (66.5%; N = 145), while mixed feeding was 31.7% (N = 69), followed by formula with 1.8% (N = 4). Participants who feed by direct latch and exclusively pumping are 81 (37.9%) and 12 (5.6%) respectively. The majority of participants feed their infants by both methods with a percentage of 56.5% (N = 121).

About 31.7% (N = 69) of participants had used a lactation consultant at least once while 66.5% (N = 145) had never used the service. In terms of availability of a lactation consultant near their home, 55.5% (N = 121) answered yes whereas 10.6% (N = 23) answered no.

The majority of participants have breastfed or tried to breastfeed their youngest child at 99.5% (N = 217).

Descriptive Statistics

Prevalence of D-MER and Level of Mother-Infant Bonding

The prevalence of D-MER experienced by mothers was assessed by D-MERq, where the question to detect D-MER is "Do you feel or have you felt unpleasant emotions right before the start and in the first few minutes of milk release during breastfeeding? (All questions refer to breastfeeding, pumping or spontaneous milk release)." It is a 5-point rating scale, where responses of 4 (often) and 5 (almost always) are classified as experiencing D-MER. Based on Table 2, the prevalence of mothers experiencing D-MER is 17.0% (n = 37).

Mother-infant bonding level was assessed using PBQ, a 6-point Likert scale (0 to 5) consisting of 25 items with total score ranging from 0 to 125. Higher total scores on the PBQ indicate greater bonding difficulties where a score of 26 is used as a cut-off score for impaired bonding. 16.51% (n = 36) of the total sample population exhibited impaired mother-infant bonding while 83.49% (n = 182) exhibited normal mother-infant bonding.

D-MERq Component Scores

As shown in Table 3, the D-MERq component was assessed to analyse the clinical features of D-MER experienced by mothers in Malaysia.

In terms of intensity of D-MER, 10.0% (N = 22) of the population reported feeling moderate unpleasant emotions, suggesting that these mothers may be experiencing uncomfortable D-MER symptoms. 4.6% (N = 10) and 2.3% (N = 5) described experiencing intense and very intense unpleasant emotions respectively, indicating that these mothers are experiencing severe D-MER symptoms.

D-MER symptoms begin in the first week after the start of breastfeeding or pumping for about 28.0% of mothers (N = 61), while 17.4% (N = 38) start at the first time of breastfeeding or pumping while the rest are later than that.

With a percentage of 45.0% (N = 98), the majority of mothers stated that the symptoms appear suddenly and about 39.4% (N = 86) stated that these symptoms occur before or during the first few minutes of milk let-down during breastfeeding.

In terms of its duration, for 33.5% (N = 73), it lasts for about 1 to 5 minutes after appearing, while for 14.7% (N = 32), it lasts longer than 5 minutes. 4.6% (N = 10) reported that they stopped breastfeeding because of this issue, while 11.9% (N = 26) stated that they were thinking of stopping because of it.

PBQ Individual Item Scores and Subscale Scores

Table 4 shows the 25 items and their PBQ scores, which display signs of impaired mother-infant bonding in a small group of mothers.

For the majority of the items, most mothers reported positive mother-infant bonding with the highest percentage of 93.6% (N = 204) choosing “Always” for the item “Feel happy when baby smiles or laughs”, 93.1% (N = 203) for item “Love baby to bits” and 90.4% (N = 197) for item “My baby is the most beautiful baby in the world”. This indicates that most mothers have a high level of mother-infant bonding.

However, a small number of mothers also reported experiencing some difficulties in mother-infant bonding as 15.6% (N = 34) stated “Always” for the item “Wish the old days when they had no baby would come back”, 5.5% (N = 12) for item “Feel trapped as a mother” and 5.0% (N = 11) for item “I feel the only solution is for someone else to look after my baby”. This indicates that some mothers, although only a few, are experiencing impaired mother-infant bonding that might be influenced by their D-MER status.

Table 5 demonstrates PBQ subscale scores, which differ by D-MER status. Participants with D-MER showed higher median (IQR) PBQ subscale scores across all domains compared to participants without D-MER. The Mann-Whitney U test demonstrated this, suggesting that there is a statistically significant association between PBQ subscale scores and D-MER status.

Reliability Analysis of the Instruments

The reliability of the Malay-translated instruments was assessed using Cronbach's alpha as shown in Table 6. The D-MERq emotion-related scale demonstrated a Cronbach's alpha value of 0.969, indicating excellent internal consistency. The PBQ total scale demonstrated a Cronbach's alpha value of 0.933, indicating excellent internal consistency. The PBQ subscales also showed Cronbach's alpha values ranging from 0.824 to 0.841. These findings indicate that the translated instruments demonstrated adequate reliability for use among breastfeeding mothers in Malaysia.

Normality Test

The Shapiro-Wilk test was performed on the PBQ total scores variable, which consists of continuous data, to assess whether the distribution is normal.

Based on Table 7, there is a significant deviation from a normal distribution; therefore, the PBQ total scores are not normally distributed ($p < 0.001$). Consequently, non-parametric statistical tests, such as the Spearman's Rank Correlation and the Mann-Whitney U test, were applied to the analysis of the PBQ total scores.

Relationship Between Presence of D-MER and Mother-Infant Bonding Level

Spearman's Rank Correlation was utilised to determine the association between presence of D-MER by using D-MERq with mother-infant bonding level by using PBQ total scores. Based on the result, there was a statistically significant positive correlation between D-MERq and PBQ total scores ($\rho = 0.297$, $p < 0.001$). This demonstrates that presence of D-MER, shown by higher D-MER scores are more likely to have more difficulties bonding with their infants, as shown by higher PBQ total scores.

Table 7 shows the association between the presence of D-MER and mother-infant bonding level analysed using the chi-square test. According to the results of the chi-square test, there is a statistically significant association between presence of D-MER and mother-infant bonding level ($\rho = 0.05$, $p < 0.001$).

As shown in Table 7, the percentage of mothers without D-MER who have a normal bond is 86.8% ($n = 158$) whereas the percentage of mothers with D-MER who have a normal bond is only 13.2% ($n = 24$), suggesting that D-MER status is correlated with a difference in mother-infant bonding level.

The Mann-Whitney U test was performed to determine if there is a significant difference between two independent groups, which in this case are differences of PBQ total scores between different groups of D-MER status. As shown in Table 8, there is a significant difference in PBQ total scores between mothers with and without D-MER ($p < 0.001$).

This can be proven as mothers without D-MER had lower PBQ total scores, showing greater mother-infant bonding level, indicated by median (IQR) of 9.00 (5.00–16.00). Meanwhile, mothers with D-MER

were reported with higher PBQ total scores with median (IQR) of 13.00 (8.00–33.00), suggesting greater difficulties in mother-infant bonding.

The Fisher's Exact Test was performed to determine the association between D-MER status and breastfeeding continuation among Malaysian mothers. According to the results of the Fisher's Exact Test, there is an association between the presence of D-MER and breastfeeding continuation ($p < 0.001$).

According to Table 9, the majority of mothers without D-MER planned to continue breastfeeding as indicated by a percentage of 89.5%. In contrast, among mothers with D-MER, the proportion of mothers who planned to continue breastfeeding (54.1%) and planned to stop breastfeeding due to symptoms or already stopped (45.9%) were nearly equal.

Discussion

Prevalence of D-MER Among Malaysian Mothers

The main objective of this study was to determine the prevalence of D-MER among breastfeeding mothers in Malaysia. This study found that the prevalence was 17.0%.

Our findings are consistent with international data reported from several global studies such as from Moriyama et al. [3], where the prevalence rate was 15.4% in Japan whereas Cappenberg et al. [7] was 14.5% in Germany. However, the study by Ureño et al. [17] and Žutić et al. [4] reported lower prevalence rates of 9.1% and 5.9% in the United States and Croatia, respectively. In comparison with the study by Kacir et al. [8], the prevalence rate in Turkey demonstrated a higher percentage of 27.7%.

A prevalence of 17.0% demonstrates that almost 1 in every 6 breastfeeding mothers may experience this condition. This significant data debunks the misconception of D-MER as a personal struggle due to maternal inadequacy or physical failure to supply the infants. Instead, it reaffirms D-MER as a distinct physiological response experienced by some breastfeeding mothers that requires clinical and supportive care.

The prevalence rate suggests the crucial gap in maternal health literacy and supportive care within the Malaysian population. Although breastfeeding challenges such as breast engorgement, mastitis and latching difficulties are currently commonly discussed and handled, D-MER still remains unknown to the majority of the population, leading to this condition remaining unaddressed and unexplored (3, 4, 9). This is largely because D-MER is a newly recognized condition, commonly confused for postpartum depression or breastfeeding aversion response (BAR) [9]. As a result, many endure D-MER in silence without asking for help or support from family members or breastfeeding experts.

Reporting and experiences of D-MER may also be influenced by traditional postpartum practices, such as Pantang among the Malay community and Zuo Yue Zi among the Chinese community. During the

postpartum period, Malay mothers may adhere to practices such as traditional massage (berurut) and hot stone compression (bertungku), which are traditionally intended to physically soothe mothers and support recovery after childbirth [18]. Similarly, many Chinese mothers practise Zuo Yue Zi, which includes deep rest, specific dietary practices, and thermal warmth to restore the balance between Yin and Yang, believed to be disrupted after childbirth and potentially detrimental to maternal health [19]. Although these practices are generally intended to promote maternal well-being and support breastfeeding experiences, they may also involve strict dietary restrictions, behavioural rules, and expectations from elders, which can contribute to maternal stress [20].

This stress may be further intensified within the Malaysian socio-cultural and religious context, where breastfeeding is often viewed as a maternal duty and an important marker of being a “good mother” [21]. Since breastfeeding is commonly idealised as a calm and pleasurable experience, mothers who experience sudden negative emotions during breastfeeding may develop feelings of guilt, shame, or inadequacy [22, 23]. Consequently, some mothers may suppress these emotions or avoid seeking help, especially when their experiences do not align with dominant cultural expectations of motherhood and breastfeeding [22–24].

Clinical Presentation and Symptoms Profile of D-MER

This study also measures the clinical features and symptom profile of breastfeeding mothers through D-MERq. From the findings of the study, the majority of breastfeeding mothers experienced a symptom profile consistent with classic D-MER. Most reported a sudden onset of symptoms, beginning within the first week after the start of breastfeeding or pumping. These emotions appear immediately before and in the first few minutes of milk let-down during breastfeeding, lasting between 1 to 5 minutes. The intensity of the emotions varied among mothers with higher percentages reported of mild emotions and vice versa.

The data on D-MER symptom profile from these findings are coherent with a previous study that documented D-MER by Žutić et al. [4]. In terms of D-MER’s effect on breastfeeding cessation, findings from this study are consistent with Žutić et al., reporting a 45.9% cessation rate compared to their 45.2% among breastfeeding mothers with D-MER [4]. Nonetheless, across the study, D-MER is thought to be one of the contributing factors to breastfeeding cessation, suggesting its impact on maternal emotions that can progress to maternal mental health and mother-infant bonding issues.

Mother-Infant Bonding and Link to D-MER

In this study, mother-infant bonding level was assessed using the PBQ among breastfeeding mothers. The finding demonstrated that mothers presenting with D-MER exhibited higher levels of bonding difficulties when compared with mothers without D-MER.

These findings align with Žutić et al. [4], who reported that the presence of D-MER among mothers leads to greater bonding difficulties with the infants.

This finding carries significant value as this issue can consequently trigger early breastfeeding cessation among breastfeeding mothers [4]. Subsequently, it can negatively impact infants' health, depriving them of antibodies and necessary nutrition gained from breastmilk, predisposing them to infection and deficiency [10]. This issue highlights the need for supportive care and comfort from family members in order to make the breastfeeding experience more manageable among these mothers.

From a psychological perspective, this phenomenon fosters a sense of maternal guilt, arising from the impression of failing as a mother or insufficiency to provide for the infants (22). Although these emotions are particularly brief, their effects can persist to a point where it affects maternal mental health where some may develop conditions such as postpartum depression (23). Research by Žutić et al. [4] demonstrated that D-MER mothers exhibit much more distress and are associated with higher levels of anxiety and depression. These findings further reinforce the stance that D-MER warrants clinical attention and breastfeeding assistance is of utmost importance to prevent secondary complications to maternal health.

The reliability findings further support the use of the Malay-translated D-MERq and PBQ in this study. As the D-MERq and PBQ measure distinct constructs, namely D-MER symptoms and mother-infant bonding respectively, the reliability analyses were appropriately conducted separately. Both the D-MERq and PBQ demonstrated excellent consistency, with total-score Cronbach's alpha coefficients exceeding 0.90. This strengthens the interpretation of the findings, as the observed relationship between D-MER and bonding difficulties was based on instruments with satisfactory reliability.

Implication of Study

The results of this study suggest the immediate need for comprehensive professional education on D-MER and its challenges. Inadequate knowledge of this matter, particularly among healthcare professionals such as nurses, midwives, and lactation consultants creates a large barrier to effective care for breastfeeding mothers. Consequently, support for mothers on this issue is limited, which can trigger further maternal mental health issues resulting from distress and negative thoughts arising during breastfeeding.

The study highlights the demand for supportive and effective care for mothers to provide them with necessities that build an environment that is calm and comfortable for them during breastfeeding. Without a proper setting, mothers may feel overwhelmed which results in early cessation as demonstrated by the study findings, which indicated that some mothers have stopped or are thinking of stopping breastfeeding.

Significance of Study

This study is significant as it outlines the serious gap in research about maternal and infant health by contributing earliest empirical data on prevalence and characteristics of D-MER among Malaysian mothers. At a global scale, D-MER is still underappreciated, and its identification as well as proper

support for affected women remains unexplored due to lack of local prevalence data, diagnostic tools and awareness among healthcare professionals. Therefore, this study provides necessary evidence in guiding clinical diagnosis and management strategies through documentation of occurrences and severity of D-MER cases in Malaysia.

Furthermore, understanding the D-MER and mother-infant bonding relationship holds significant relevance for public health. Breastfeeding is a principal determinant of nutrition and immunity for the infant, yet emotional instability linked with D-MER may disturb the breastfeeding process and maternal wellbeing. Hence, through analysing the correlation between D-MER and bonding pattern, this research presents insights on how a physiological reflex during lactation can impact both breastfeeding experience and early relational development.

The findings of this research have the potential to improve maternal support systems, raise awareness among the public and healthcare professionals, and facilitate the development of targeted programs for breastfeeding mothers. In addition, this study can serve as a foundation for future research in Malaysia, contributing to the expanding international discourse on the psychological and physiological dimensions of lactation.

Limitations and Future Research

Despite the promising results, it is important to address certain limitations of the study. A cross-sectional study design that captures data at a single point in time cannot provide evidence on causal relationships over time. The reported correlation between D-MER and bonding difficulties might be partially influenced by underlying depressive symptoms, as this study did not screen participants for postpartum depression (PPD) using standardized measurement tools such as Edinburgh Postnatal Depression Scale (EPDS). This study overlooked the unique Malaysian sociocultural context, specifically traditional postnatal confinement practices like Pantang (Malay) and Zuo Yue Zi (Chinese) (18,19). These cultural norms and expectations heavily influence maternal mental health and breastfeeding experiences, serving as confounding variable that either alleviate or exacerbate psychological burden of D-MER (18,19). Lastly, by utilizing convenience sampling technique to recruit the participants which relied largely on social network distribution, there is a constraint on sample representativeness where technically proficient mothers who are actively seeking information on health literacy regarding breastfeeding are over-represented.

To further build upon the findings, future research should consider employing a longitudinal design to monitor change in D-MER throughout different postpartum periods and stages to analyse whether the condition naturally diminishes or worsens over time as lactation becomes established. Qualitative studies, such as interviews, may be employed to provide further deep and extensive insights on D-MER characteristics and experiences from mothers themselves. Lastly, to provide support for breastfeeding mothers, researchers may conduct interventional studies using non-pharmacological and

pharmacological management to observe which method is more effective in alleviating symptoms and experiences for breastfeeding mothers.

Conclusion

Lack of data and research on D-MER, particularly in Malaysia, is the main concern of this study. These results provide the earliest empirical data on the prevalence of D-MER in Malaysia and highlight the negative impact of D-MER on breastfeeding mothers specifically, the effects on mother-infant bonding level, which leads to early breastfeeding cessation that can adversely affect the infants' health. This study also underscores the obvious demand for clinical support for breastfeeding mothers enduring this condition to improve their experiences throughout the breastfeeding journey. Future study should consider designing longitudinal or intervention studies to provide extensive comprehension on D-MER progression and how to overcome it. In addition, qualitative studies are recommended to explore mothers' experiences with D-MER, including coping mechanisms, challenges encountered throughout the journey and type of support received and perceived as beneficial.

Abbreviations

BAR

Breastfeeding Aversion Response

CVR

Content Validity Ratio

D

MER-Dysphoric Milk Ejection Reflex

D

MERq-Dysphoric Milk Ejection Reflex Questionnaire

EPDS

Edinburgh Postnatal Depression Scale

I

CVI-Item-Level Content Validity Index

IBM

International Business Machines

IQR

Interquartile Range

PBQ

Postpartum Bonding Questionnaire

PPD

Postpartum Depression

S

CVI/Ave-Scale-level Content Validity Index

SPSS

Declarations

Ethics approval and consent to participate

Ethical approval for this study was obtained from UiTM Ethics Committee with approval code of FERC-PH240-UGA53/2026. All participants were briefed that their involvement was voluntary and their consent was obtained upon enrolment with the right to withdraw at any time without repercussions. To ensure confidentiality and privacy, the researchers collected data anonymously and in accordance with ethical standards.

Consent for publication

Not applicable.

Conflict of Interest

The authors declare that there is no conflict of interest associated with this study.

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Authors' contributions

ANA: Investigation, data curation, formal analysis, visualization, and writing-original draft. SA: Conceptualization, methodology, supervision, project administration, and writing-review and editing. MMA: Methodology and validation. All authors reviewed and approved the final manuscript.

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Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Tables

Tables 1-9 are available in the Supplementary Files section.

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