



Mapping Risk Factors Associated with Breast Engorgement Among Postpartum Mothers: A Scoping Review

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<p>Track Record Article</p> <p>Revised: 25 February 2026 Accepted: 7 March 2026 Published: 31 March 2026</p> <p>How to cite : Fitriani, N. R., Mose, J. C., Sukarsa, M. R. A., Prasetyo, D., Rahayuningsih, S. E., Anwar, R., & Adnani, Q. E. S. (2026). Mapping Risk Factors Associated with Breast Engorgement Among Postpartum Mothers: A Scoping Review. <i>Contagion : Scientific Periodical of Public Health and Coastal Health</i>, 8(1), 283–300.</p>	<p style="text-align: center;">Abstract</p> <p><i>Cognitive decline is an increasing public health concern among older people, particularly Breast engorgement is one of the most common postpartum breastfeeding problems and may increase the risk of mastitis, maternal discomfort, and early breastfeeding discontinuation. This scoping review aimed to map and synthesize existing evidence regarding risk factors associated with breast engorgement in postpartum women. The review followed the PRISMA-ScR guidelines. A systematic search of Google Scholar, ScienceDirect, Wiley Online Library, and PubMed was conducted for articles published between 2015 and 2025. Studies examining factors associated with breast engorgement among postpartum mothers were eligible. Two independent reviewers performed study screening and selection, and data were charted using a standardized extraction form. A total of 11 articles met the inclusion criteria and were included in the final analysis. The findings indicate that breast engorgement is a multifactorial condition influenced by maternal characteristics, socioeconomic and environmental factors, infant-related factors, breastfeeding practices, maternal knowledge and perceptions, family and social support, healthcare system support, and cultural practices. The themes were generated through inductive thematic analysis of the included studies. Recurrent patterns across studies suggest that inadequate milk removal, delayed breastfeeding initiation, limited maternal knowledge, and insufficient professional support are frequently reported factors associated with breast engorgement. This review highlights the complexity of breast engorgement and the broad range of factors discussed in the literature. The findings provide an evidence map that may inform future research, clinical practice, and supportive breastfeeding interventions, while acknowledging that scoping reviews are designed to explore and map evidence rather than determine causal relationships.</i></p> <p>Keywords: Breast Engorgement, Postpartum Mothers, Breastfeeding, Risk Factors, Scoping Review.</p>
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INTRODUCTION

Breast engorgement, or milk stasis, is a common early postpartum condition characterized by excessive milk accumulation, causing breast swelling, pain, and breastfeeding difficulties (WHO, 2022). Globally affecting an estimated 15–50% of breastfeeding women and potentially progressing to mastitis if unmanaged (WHO, 2022), it represents a significant maternal health concern.

High prevalence has been reported across diverse settings, including rates exceeding 60% in the United States (Ulfah & Galaupa, 2025), while data from Southeast Asia and

Indonesia indicate a substantial, context-dependent burden influenced by cultural and healthcare system factors (Solihah et al., 2023).

Pathophysiologically, engorgement results from impaired venous and lymphatic drainage leading to increased intraductal pressure and reduced milk flow (Perangin Angin, 2020), commonly triggered by delayed initiation, infrequent feeding, or ineffective latch (Nurjannah, 2024).

Beyond physical discomfort, untreated engorgement may disrupt exclusive breastfeeding and increase the risk of mastitis or abscess formation (Ulfah & Galaupa, 2025). Although primary studies are expanding, existing reviews tend to focus on isolated determinants and comprehensive synthesis across contexts remains limited. Therefore, a scoping review is warranted to systematically map the range of factors associated with breast engorgement and identify gaps to inform future research and context-sensitive breastfeeding support strategies.

METHODS

Study Design and Methodological Framework

This scoping review systematically mapped evidence on maternal, infant, behavioral, sociocultural, and health-system factors linked to breast engorgement among postpartum women, using a scoping approach as the most appropriate method to capture the breadth and variability of study designs, contexts, and conceptual frameworks rather than produce pooled estimates.

The review was conducted and reported in accordance with the *Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews* (PRISMA-ScR) guidelines (PRISMA, 2020). Methodological procedures followed the five-stage framework proposed by Arksey and O'Malley and later refined by Levac et al. and Peters et al., with additional enhancements to strengthen rigor and transparency (Peters et al., 2021). These refinements included independent duplicate screening, structured data-charting forms, calibration exercises prior to full extraction, and iterative team discussions during thematic synthesis to ensure analytical consistency and reproducibility.

Identifying the Research Question

The research question was formulated using the Population-Exposure-Outcome (PEO) framework to ensure conceptual clarity and alignment with the review objective. The guiding question for this review was: "What factors have been identified in the literature as being associated with breast engorgement among postpartum mothers?"

Table 1. PEO Framework

P (Population)	E (Exposure)	O (Outcome)
Postpartum mothers or women who are breastfeeding following delivery	Several variables affect the accumulation of breast milk that causes breast engorgement.	Breast engorgement during the postpartum period

Identification of Relevant Studies

A comprehensive literature search was conducted across four electronic databases: PubMed, ScienceDirect, Wiley Online Library, and Google Scholar. The search included studies published between January 2015 and December 2025 to capture contemporary developments while maintaining sufficient historical depth.

Both Medical Subject Headings (MeSH) and free-text keywords were employed. Boolean operators were applied to combine search terms related to population, condition, and associated factors. The core search string included variations of the following terms: (postpartum mothers OR breastfeeding mothers OR nursing mothers) AND (breast engorgement OR milk stasis OR breast congestion) AND (risk factors OR determinants OR associated factors) AND (breastfeeding practices OR sociocultural factors OR health system support). Search strategies were adapted to the indexing system of each database to ensure optimal sensitivity and specificity. All retrieved records were exported into reference management software for organization and screening.

Study Selection Process

The database search yielded 3,571 records. Following exportation into reference management software, duplicate records were identified and removed ($n = 57$). The remaining records were then subjected to title and abstract screening. Title and abstract screening were conducted independently by two reviewers to minimize selection bias. Studies that did not meet the predefined inclusion criteria were excluded at this stage. Articles deemed potentially relevant were retrieved in full text for further assessment.

Full-text eligibility screening was also conducted independently by the same two reviewers. Disagreements at any stage of the screening process were resolved through discussion and consensus. When consensus could not be reached, a third reviewer was consulted to make the final determination. After full-text evaluation, studies were excluded for reasons including irrelevance to breast engorgement, inclusion of non-postpartum populations,

lack of examination of associated factors, or insufficient methodological clarity. Ultimately, eleven studies met the inclusion criteria and were included in the final synthesis. A detailed stepwise breakdown of the screening process, including duplicate removal and reasons for exclusion at the full-text stage, is presented in the PRISMA flow diagram.

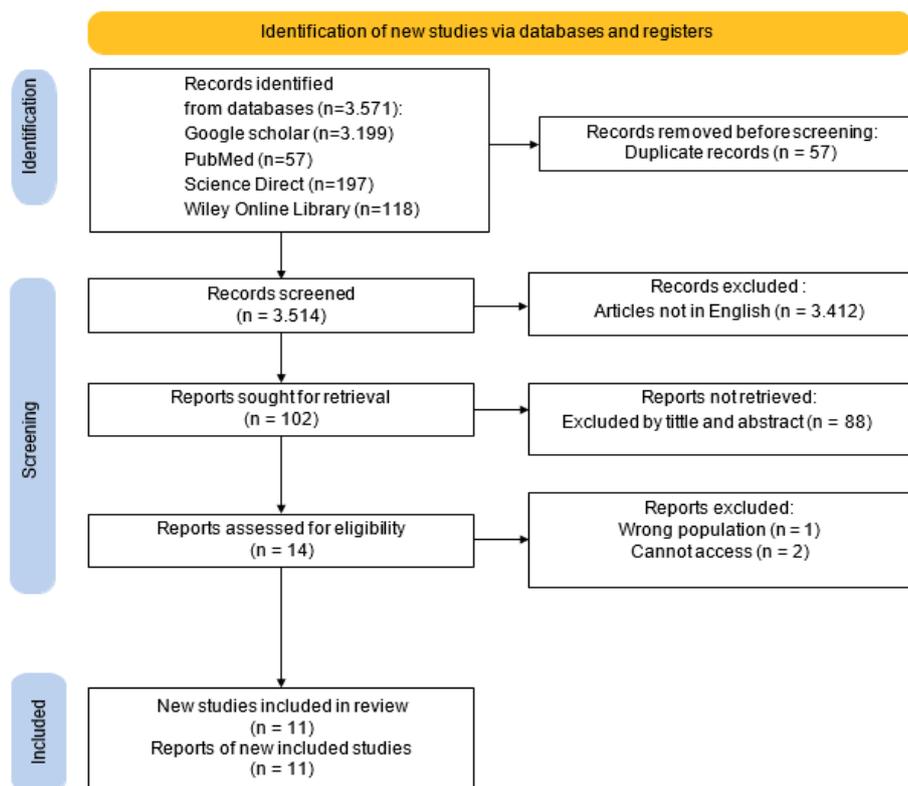


Figure 1. PRISMA Flowchart

Eligibility Criteria

The inclusion and exclusion criteria applied during study selection are summarized below.

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
1. Peer-reviewed original research articles (quantitative, qualitative, or mixed-methods)	1. Review articles, conference abstracts, protocols, editorials, or commentaries
2. Studies involving postpartum or breastfeeding mothers	2. Studies involving non-postpartum populations
3. Studies examining factors associated with breast engorgement	3. Studies not assessing associated factors
4. Published in English	4. Incomplete or inaccessible full texts
5. Full-text available	
6. Published between 2015-2025	

Data Charting and Extraction

Data extraction used a standardized charting form that captured core study characteristics, definitions, measures, associated factors, and key findings; following a pilot

calibration by two independent reviewers and minor form revisions, the two reviewers independently extracted all data, resolving differences through regular consensus meetings.

RESULTS

This scoping review examined factors associated with postpartum breast engorgement, including maternal characteristics, breastfeeding practices, infant factors, sociocultural influences, and health system support. A comprehensive database search was conducted, followed by screening, duplicate removal, and full-text assessment according to predefined criteria, yielding 11 eligible studies published between 2015 and 2025 across low-, middle-, and high-income countries. The included studies demonstrated methodological diversity, encompassing cross-sectional, cohort, and qualitative designs, and Table 3 summarizes their key characteristics, including authors, country, objectives, design, data collection methods, and main findings, providing an overview of the varied research contexts informing the thematic synthesis.

Table 3. Data Charting

No	Author/ Year	Country	Objectives	Design	Methods	Result
1.	(Wepeba et al., 2025)	Ghana	To assess the factors associated with breast engorgement among postpartum mothers in a hospital setting.	Cross-sectional	An analytical cross-sectional study of 320 postpartum mothers used structured interviews to assess factors associated with breast engorgement, with data analyzed using descriptive statistics and logistic regression in STATA 17 ($p < 0.05$).	Despite many mothers practicing exclusive breastfeeding, inadequate knowledge and improper techniques exacerbated by socioeconomic and maternal infant factors lead to insufficient breast emptying, thereby increasing the risk of breast engorgement and disrupting breastfeeding continuity.
2.	(Ogbo et al., 2017)	Australia	To determine the prevalence of breast engorgement and examine factors associated with its occurrence among	Prospective cohort	A cohort study in Australia followed first-time mothers from pregnancy to postpartum, collecting survey data on	Although exclusive breastfeeding is initially high, its rapid decline driven by young maternal age,

No	Author/ Year	Country	Objectives	Design	Methods	Result
			postpartum mothers in a linguistically and culturally diverse community in Sydney, New South Wales, Australia.		breastfeeding initiation and experiences, which were analyzed using descriptive statistics and multivariate regression to identify factors associated with breastfeeding difficulties.	smoking, psychological stress, low income, and inadequate partner support directly increases the risk of breast engorgement through early interruption of effective and frequent milk removal.
3.	(Purwaningsih & Sudarmi, 2024)	Indonesia	To explore the association between maternal, infant, and breastfeeding-related factors and the occurrence of breast engorgement among postpartum mothers.	Cross-sectional	An observational cross-sectional study of 84 systematically selected breastfeeding mothers of infants aged 6–12 months used a structured questionnaire to assess maternal knowledge, breastfeeding initiation, confidence, motivation, cultural practices, and family support, with data analyzed using descriptive and chi-square tests at $\alpha = 0.05$.	The lack of maternal knowledge, delayed breastfeeding initiation, low confidence, unsupportive norms, and inadequate family support indirectly heighten the risk of breast engorgement by reducing breastfeeding frequency and effectiveness, leading to inadequate breast emptying, milk stasis, and early difficulty sustaining exclusive breastfeeding.

No	Author/ Year	Country	Objectives	Design	Methods	Result
4.	(Ahmad Rahimi et al., 2020)	Afghanistan	To determine the factors associated with breast engorgement among postpartum mothers in Kandahar, Afghanistan.	Cross-sectional	A cross-sectional analytical study conducted in Kandahar, Afghanistan, collected data from 1,028 mothers of children under two years attending seven healthcare centers (June–November 2018) using a researcher-developed questionnaire, with analysis performed in SPSS version 22.	Inappropriate exclusive breastfeeding practices such as early introduction of solids, pacifier use, and giving non-milk substances, along with low socioeconomic status, urban lifestyle, gender-based feeding norms, and sedative use, disrupt breastfeeding regularity and efficiency, thereby increasing the risk of inadequate milk removal, milk stasis, and breast swelling, whereas consistent breastfeeding and the use of expressed breast milk help prevent inefficient emptying and engorgement.
5.	(Rapingah et al., 2021)	Indonesia	To identify factors associated with breast engorgement among postpartum mothers.	Cross-sectional	A cross-sectional study of 85 female health professionals with infants aged 6–24 months in 10 community health centers in East Jakarta used structured questionnaires to assess factors related to breastfeeding,	Despite moderate exclusive breastfeeding rates among female primary health-care providers, limited maternal understanding and younger age hinder effective milk removal, directly

No	Author/ Year	Country	Objectives	Design	Methods	Result
6.	(Joseph & Earland, 2019)	Nigeria	To examine sociocultural factors associated with breast engorgement among postpartum mothers in rural areas.	Qualitative study	with data analyzed using univariate, chi-square, and multivariate logistic regression (backward stepwise) methods. A qualitative study grounded in an interpretive social constructivist approach conducted semi-structured interviews with 20 mothers aged 18–39 years in two local government areas of Katsina State, Nigeria, with data analyzed using thematic content analysis.	heightening the risk of breast engorgement and driving premature cessation of exclusive breastfeeding. Sociocultural norms, family influences, and customary practices that delay breastfeeding initiation, reduce feeding frequency, or promote supplementation lead to inadequate milk drainage, thereby sharply increasing the risk of breast engorgement and undermining the continuity of exclusive breastfeeding.
7.	(Mohamed et al., 2020)	Kenya	To evaluate factors associated with breast engorgement among postpartum mothers attending Wajir County Hospital in Kenya.	Qualitative study	Data were collected through eight focus group discussions with 72 mothers of infants under six months and nine interviews with healthcare staff at Wajir County Hospital using purposive and random sampling with pre-tested instruments and audio recording upon consent and analyzed using thematic content analysis.	Delayed initiation, infrequent breastfeeding, and early supplementation disrupt normal breast emptying and promote milk accumulation, sharply increasing the risk of breast engorgement, while cultural pressures, strong family influence, and limited

No	Author/ Year	Country	Objectives	Design	Methods	Result
						professional support further exacerbate its development and persistence.
8.	(Alyousefi, 2021)	Saudi Arabia	To explore factors associated with breast engorgement among postpartum mothers in Saudi Arabia.	Cross-sectional	A cross-sectional survey of 322 mothers attending a family medicine clinic in Saudi Arabia examined sociodemographic, perceptual, and experiential factors associated with breastfeeding practices and their relation to breast engorgement, with data analyzed using bivariate and multinomial logistic regression analyses.	Among 322 mothers, the low exclusive breastfeeding rate of 28% was driven by concerns about milk insufficiency, discomfort breastfeeding in public, limited supportive environments, weak prenatal commitment, and stopping breastfeeding during maternal illness, all of which led to inconsistent feeding, inadequate breast emptying, milk accumulation, and a heightened risk of breast engorgement.
9.	(Kandeel et al., 2018)	Egypt	To examine social, maternal, and infant factors associated with breast engorgement among postpartum mothers.	Retrospective cohort	A comparative review-based study involving 827 infants aged 6–24 months from pediatric and well-baby clinics in Cairo, Egypt, categorized participants by early feeding type and used structured questionnaires to assess maternal,	Maternal background, infant factors, and conditions that promote mixed or formula feeding such as young maternal age, primiparity, multiple children, unmarried status, prematurity,

No	Author/ Year	Country	Objectives	Design	Methods	Result
					child, obstetric, and socioeconomic factors related to breastfeeding patterns and potential breast engorgement, with data analyzed using descriptive statistics, chi-square tests, odds ratios, and logistic regression ($p < 0.05$).	cesarean delivery, and NICU admission disrupt breastfeeding regularity, leading to inadequate breast emptying, milk buildup, and breast engorgement that hinder the continuation of exclusive breastfeeding in the first six months.
10.	(Mundagowa et al., 2019)	Zimbabwe	To investigate maternal, infant, household, environmental, and cultural factors associated with breast engorgement among postpartum mothers in Gwanda District.	Cross-sectional	Data were collected through questionnaires completed by 223 mothers of 6–12-month-old infants at health facilities in Gwanda District and analyzed using descriptive statistics, bivariate tests, multivariate regression, and thematic analysis to identify determinants of breastfeeding practices, providing critical insights into factors contributing to breast engorgement.	A wide gap between maternal knowledge and actual breastfeeding practice, especially early introduction of water or other liquids, causes inconsistent and insufficient milk removal, increasing milk accumulation and breast swelling, with the risk further heightened among young, low-income mothers and those facing strong cultural and financial pressures that undermine exclusive breastfeeding and intensify breast engorgement.

No	Author/ Year	Country	Objectives	Design	Methods	Result
11.	(Asare et al., 2018)	Ghana	To assess breastfeeding practices and sociodemographic factors associated with breast engorgement among mothers attending the child welfare clinic in Manhean, Tema East Sub-Metropolitan Area, Greater Accra Region, Ghana.	Cross-sectional	Data from direct interviews with 355 breastfeeding mothers in Ghana were analyzed using descriptive statistics and logistic regression to identify factors influencing exclusive breastfeeding, offering relevant insights into conditions that may lead to breast engorgement.	Despite good awareness, bottle-feeding and early complementary feeding hinder effective milk removal, causing milk stasis and breast engorgement, a risk further amplified by maternal age and sociocultural pressures.

Critical Appraisal

Methodological appraisal was conducted using the Joanna Briggs Institute (JBI) critical appraisal tools appropriate to each study design (JBI, 2025). Rather than assigning uniform quality labels, the appraisal examined methodological transparency, analytical appropriateness, and alignment between objectives and outcomes. Most included studies used cross-sectional or cohort designs and employed multivariate analyses, while qualitative studies used in-depth interviews and thematic analysis to explore experiential and sociocultural dimensions.

Across studies, breast engorgement was consistently described as being associated with interconnected maternal, behavioral, familial, and health system factors. Early breastfeeding initiation, effective milk removal, and adequate professional support were frequently reported in relation to lower occurrences of engorgement. However, given the predominance of observational designs, these findings should be interpreted as associative rather than causal, underscoring the need for more robust longitudinal and interventional research.

Table 4. Critical Appraisal

Article Code	Research Design	Appraisal Tool Used	Key Methodological Strengths	Reporting Limitations Identified
A1	Cross-sectional (Wepeba et al., 2025)	JBI Cross-Sectional	Clear inclusion criteria; appropriate statistical analysis	Limited confounder control
A2	Prospective cohort (Ogbo et al., 2017)	JBI Cohort	Clear exposure/outcome definition; temporal clarity	Attrition reporting limited
A3	Cross-sectional (Purwaningsih & Sudarmi, 2024)	JBI Cross-Sectional	Defined population; outcome measured	Self-reported measures

A4	Cross-sectional (Ahmad Rahimi et al., 2020)	JBI Cross-Sectional	Clear analytical approach	Limited adjustment variables
A5	Cross-sectional (Rapingah et al., 2021)	JBI Cross-Sectional	Defined breastfeeding variables	Potential recall bias
A6	Qualitative (Joseph & Earland, 2019)	JBI Qualitative	Methodological congruence; thematic clarity	Reflexivity not detailed
A7	Qualitative (Mohamed et al., 2020)	JBI Qualitative	Rich contextual interpretation	Researcher positionality unclear
A8	Cross-sectional (Alyousefi, 2021)	JBI Cross-Sectional	Adequate sample description	Confounding not fully explored
A9	Retrospective cohort (Kandeel et al., 2018)	JBI Cohort	Outcome clearly defined	Retrospective data limitation
A10	Cross-sectional (Mundagowa et al., 2019)	JBI Cross-Sectional	Appropriate statistical testing	Limited causal inference capacity
A11	Cross-sectional (Asare et al., 2018)	JBI Cross-Sectional	Clearly reported variables	Cross-sectional design limitation

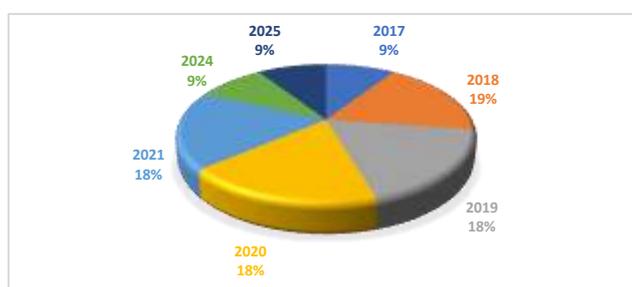


Figure 2. Year Classification

As shown in the figure above, the articles for this research were published from 2017 to 2025, representing the timeline of research regarding postpartum breast engorgement. This is further broken down as follows: one article in 2017, two in 2018, two in 2019, two in 2020, two in 2021, one in 2024, and one in 2025. The included studies were published between 2017 and 2025, with 2017 selected as the lower limit to ensure inclusion of research aligned with contemporary breastfeeding guidelines and current clinical practices. Publication frequency peaked between 2018 and 2021, indicating increased research attention during that period, while fewer studies were identified in the earlier and more recent years.

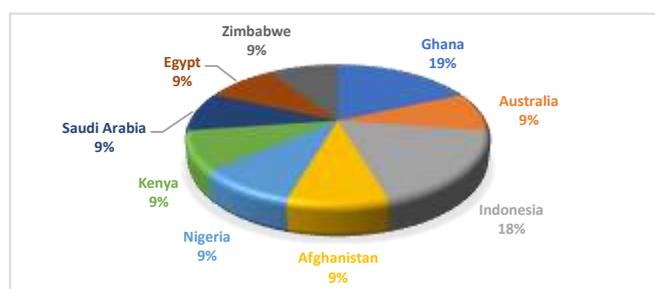


Figure 3. Country Classification

From the diagram above, it is clear that the analyzed research came from 10 countries, indicating broad global coverage. The country that contributed the most to the research (19%) was Ghana, followed closely by Indonesia, which also contributed 18%. This indicates that these two countries were the primary contributors to the research that was analyzed in the review. On the other hand, Australia, Afghanistan, Nigeria, Kenya, Saudi Arabia, Egypt, and Zimbabwe each contributed 9%.

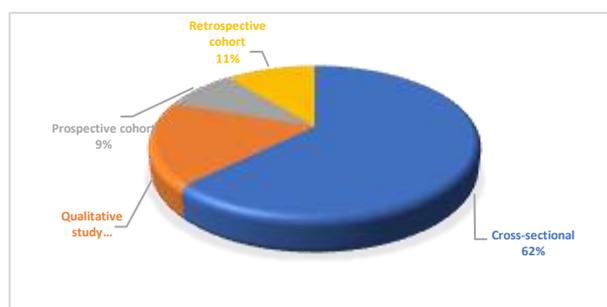


Figure 4. Research Design Classification

According to the diagram presented, the majority of the studies examined in the research were mostly cross-sectional, accounting for 62% of the total. This indicates that most studies used an observational design to assess variables at a single point in time. On the other hand, qualitative research accounted for 18%, indicating substantial use of exploratory research to understand aspects of the research topic. On the other hand, retrospective cohort research accounted for 11%, while prospective cohort research accounted for only 9%, indicating a minor application of cohort research.

Table 4. Theme Analysis

Theme	Sub-theme	Article Code
Maternal Characteristics	Maternal characteristics include the mother's age, total pregnancies, total children, education, self-esteem, drive, the mother's attitude toward breastfeeding, the mother's feelings about breastfeeding, the mother's smoking habits during pregnancy, and the mother's complications after giving birth.	A1, A2, A3, A5, A8, A9, A11
Socioeconomic and Environmental Context	Socioeconomic and living conditions include family income and financial situation, socioeconomic status, and type of living area, such as cities or countryside. All these factors affect access to breastfeeding resources and support.	A1, A2, A4, A10
Infant-Related Factors	The elements associated with the baby include age and sex, particularly in cases of boys, as they determine expectations in terms of feeding, caregiving methods, and breastfeeding behaviors.	A1, A4
Breastfeeding Practices	The habits of breastfeeding include how often breastfeeding occurs, prompt initiation of breastfeeding after delivery, providing expressed breast milk, continuation of breastfeeding when the mother is sick, and the mother's plan for exclusive breastfeeding.	A3, A4, A8

Knowledge, Perception, and Cultural Beliefs	and	Understanding, beliefs, and viewpoints cover a mother's understanding and beliefs about breastfeeding, cultural traditions that influence feeding practices, and the belief that babies need extra liquids such as water.	A1, A3, A5, A7, A10
<i>Social Professional Support</i>	<i>and</i>	Social and systemic support includes family involvement, peer and community encouragement, healthcare provider assistance, access to breastfeeding resources, and clinical factors such as medication use, all of which collectively influence mothers' capacity to initiate and sustain effective breastfeeding in the early postpartum period.	A2, A3, A4, A5, A6, A7, A8

DISCUSSION

This scoping review reveals that breast engorgement is shaped by a multidimensional set of maternal, infant, behavioral, sociocultural, and health-system factors, with much of the evidence originating from low- and middle-income settings such as Ghana and Indonesia. The predominance of cross-sectional studies indicates that these findings reflect associative patterns rather than causal relationships, underscoring the need for cautious interpretation and more robust future research. (Aprilina et al., 2025; Indrayani et al., n.d.; Rachman, 2022; Rahmadani, 2025; Solihah et al., 2023; Tryaningsih et al., 2025; Ulfah & Galaupa, 2025).

Maternal Characteristics

Across studies, maternal characteristics such as age, parity, educational attainment, and breastfeeding confidence were consistently reported in association with breast engorgement or breastfeeding-related challenges. However, the strength and direction of these associations varied across contexts. For example, younger or primiparous mothers were more frequently described as experiencing breastfeeding difficulties, yet this pattern was not uniform in all settings (A1, A2, A3, A5, A8, A9, A11).

This suggests that maternal vulnerability may be mediated by contextual support systems rather than being intrinsically determined by age or parity. In settings with strong postnatal counseling services, maternal age appeared less influential, whereas in low-resource environments, inexperience may be compounded by limited professional guidance. Therefore, maternal characteristics may function as contextual risk markers rather than independent determinants (Oktarida, 2023; Rachman, 2022; Setiadewi et al., 2023).

Socioeconomic and Environmental Context

Socioeconomic conditions were repeatedly linked with breastfeeding patterns and access to lactation support. However, the relationship between economic status and breast engorgement appeared indirect. Urban residence was associated with improved access to professional support, yet urban mothers also faced employment-related constraints affecting breastfeeding frequency (A1, A2, A4, A10).

This variability indicates that structural conditions influence breastfeeding dynamics through resource distribution, cultural norms, and health system accessibility. Rather than a simple rural-urban dichotomy, the evidence suggests a layered interaction between socioeconomic capacity and institutional support (Wepeba et al., 2025).

Infant-Related Factors

Infant characteristics, particularly feeding effectiveness and latch quality, were among the most biologically plausible factors associated with breast fullness. Unlike sociodemographic variables, infant sucking effectiveness directly influences milk drainage, providing a mechanistic explanation for the association observed in several studies.

However, the review also reveals inconsistencies in how infant factors were measured. Some studies relied on maternal self-report, while others used observational assessment. This methodological variability may partly explain divergent findings across contexts (Ahmad Rahimi et al., 2020).

Breastfeeding Practices

Among all thematic domains, breastfeeding practices (early initiation, feeding frequency, and milk expression techniques) were the most consistently associated with breast engorgement across studies. This consistency aligns with the physiological understanding of lactation: insufficient or delayed milk removal contributes to breast fullness.

Nevertheless, because most data derive from cross-sectional designs, temporal sequencing cannot be confirmed. In some contexts, it remains unclear whether infrequent feeding precedes engorgement or whether discomfort prompts mothers to modify feeding patterns. Future longitudinal research is required to clarify this directionality (Afrinita et al., 2025; Isdayanti et al., 2023).

Knowledge, Perception, and Cultural Beliefs

Maternal knowledge and sociocultural beliefs appeared to indirectly shape breastfeeding behaviors. In several studies, misconceptions regarding supplementation or pain tolerance were associated with altered feeding frequency. However, cultural influence was not uniformly detrimental: in some settings, traditional support structures enhanced breastfeeding continuity (A1, A3, A5, A6, A7, and A10).

This variability highlights the importance of culturally sensitive health education rather than uniform behavioral prescriptions. Cultural context acts as an interpretive lens through which breastfeeding challenges are understood and managed (Amna & Diana, 2023; Kusuma & Yolanda Umar, 2023).

Social and Professional Support

Social and professional support emerged as protective in several studies, yet the magnitude of association differed across regions. In countries with established lactation counseling systems, professional support appeared more influential, whereas in low-resource settings, family-based guidance dominated. This suggests that support mechanisms function differently depending on institutional maturity and healthcare infrastructure (A2, A3, A4, A5, A6, A7, A8).

CONCLUSIONS

This scoping review mapped the range of factors reported to be associated with breast engorgement among postpartum mothers across diverse contexts. The evidence indicates that breast engorgement is linked to a complex interplay of maternal, behavioral, sociocultural, and health system-related conditions rather than a single explanatory factor.

Breastfeeding practices, particularly those related to timely initiation and effective milk removal, emerged as the most consistently associated domain, while contextual factors such as social support and healthcare access appear to shape mothers' capacity to manage early lactation challenges. Given the predominance of cross-sectional evidence, these findings should be interpreted as associative rather than causal. The review underscores the need for integrated, context-sensitive postpartum support strategies and highlights the importance of strengthening early lactation monitoring within public health systems. Future longitudinal and intervention studies are warranted to clarify temporal relationships and inform evidence-based prevention strategies.

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