

LITERATURE REVIEW: THE RELATIONSHIP BETWEEN PERCEIVED INSUFFICIENT MILK SUPPLY AND THE SUCCESS OF EXCLUSIVE BREASTFEEDING

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ABSTRACT

Background: Increasing the duration of exclusive breastfeeding is a national and international priority. The perception of insufficient breast milk is one of the main causes of failure in exclusive breastfeeding. This study is an integrative review of recent studies related to the perception of insufficient breast milk. This study aims to describe the relationship between the perception of insufficient breast milk and the success of exclusive breastfeeding.

Method: The method used in this study is a literature review. Data collection was conducted through the PubMed database published from 2020 to 2025, identification based on keywords, titles, and abstracts, and selection based on inclusion and exclusion criteria. A total of 10 articles were reviewed in this literature review.

Results: Based on the analysis of the 10 articles, it was found that 26% to 75.3% of breastfeeding mothers stopped breastfeeding earlier due to the perception of insufficient breast milk caused by a lack of knowledge and previous breastfeeding experience.

Conclusion: It can be concluded that the perception of insufficient breast milk is related to the success of exclusive breastfeeding.

Keyword: breastfeeding, exclusive breastfeeding, perception of insufficient breast milk

INTRODUCTION

The World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) recommend exclusive breastfeeding, meaning babies receive only breast milk for the first six months of life without any additional food or drink, including water (WHO, 2014). The prevalence of exclusive breastfeeding among children under 6 months in low- and middle-income countries is 48%, making it a particular concern for governments (UNICEF, 2021).

Exclusive breastfeeding offers numerous benefits for maternal and infant health, as well as economic benefits (Tschiderer et al., 2022). For infants, breastfeeding is associated with a lower risk of diarrhea, respiratory infections, otitis media, and childhood obesity. For mothers, breastfeeding can reduce the risk of excessive postpartum bleeding and help speed the return of the uterus to its pre-pregnancy position. In the long term, breastfeeding has the potential to reduce the risk of ovarian cancer, breast cancer, and diabetes mellitus (Babic et al., 2020). Breastfeeding has economic importance in reducing hospital costs for the treatment of diseases, such as necrotizing enterocolitis, respiratory and gastrointestinal tract infections, sudden infant death syndrome, atopic dermatitis, and asthma (Khan & Islam, 2017).

Demographic, physiological, and psychological factors can positively or negatively influence the cessation of exclusive breastfeeding (Shiraishi et al., 2020). The greatest influence is due to the mother's perception of low milk supply. Perceived low milk supply is defined as the mother's belief that her milk production is insufficient in quantity or nutritional quality to meet her baby's needs (Namyalo et al., 2023). Although this condition is commonly referred to as hypogalactia, this perception does not always represent the actual condition (lack of milk production due to organic factors) but is often caused by inappropriate breastfeeding techniques (latching, positioning of the baby and mother, etc.) (Escamilla et al., 2022). The perception of insufficient breast milk is one of the most common reasons for discontinuing exclusive breastfeeding from the neonatal period and the most common reason for introducing formula. Early introduction of formula will result in a decrease in the mother's milk production (Sanchez et al., 2024).

Perceived of insufficient breast milk supply are a significant barrier to the implementation of breastfeeding interventions, and concerns about breast milk insufficiency have been identified in 60–90% of mothers in low- and middle-income countries. Specifically, mothers often assess breast milk sufficiency based on irrelevant indicators, such as the baby's cry. In fact, signs of adequate breast milk supply include steady growth, normal elimination, and breast fullness before and after breastfeeding. However, mothers still perceive breast milk supply as insufficient even when these indicators are met (Kent et al., 2021).

Persepsi ibu tentang kekurangan ASI merupakan tantangan global, dan Maternal perceptions of breast milk supply are a global challenge, and their impact can vary across cultural contexts. Although some countries have improved breastfeeding outcomes over the past two decades, these improvements have not occurred rapidly enough to achieve the target of 70% exclusive breastfeeding by 2030 set by the Global Breastfeeding Collective led by WHO and UNICEF (Bhattacharjee et al., 2021). Therefore, it is crucial to examine how maternal perceptions of breast milk supply relate to exclusive breastfeeding practices. In response to the WHO's call for increased exclusive breastfeeding and the current low rates of exclusive breastfeeding, the purpose of this article is to examine the relationship between perceptions of breast milk supply and exclusive breastfeeding.

RESEARCH METHOD

This study used a literature review method, searching for articles in PubMed using the keywords "insufficient AND milk." The literature used in this study came from international journals indexed by Scopus. The selected articles were studies describing the relationship between the perception of low breast milk supply and the success/failure of exclusive breastfeeding.

The inclusion criteria were: (1) Publication year between 2020 and 2025, (2) Quantitative research with correlation or case-control studies, (3) Examining the relationship between the perception of low breast milk supply and the success/failure of exclusive breastfeeding.

From the past five years, a total of 911 articles were identified. An initial screening based on relevant titles yielded 64 articles. A second screening, based on accessibility, yielded 27 articles. A final screening assessed the content against the inclusion criteria, leading to the selection of 10 articles. Of these 10 articles, all are indexed in Scopus, with 4 indexed in Scopus Q1, 5 in Scopus Q2, and 1 in Scopus Q4.

RESULTS

Based on the literature review, articles were found as can be seen in the following table:

No	Article Title	Country/Year	Design	Research Findings
1	Breastfeeding Practices in the Twin Town of India — A Cross-Sectional Study (Bhardwaj & Smitha, 2024)	India, 2024	Quantitative, cross-sectional	Mothers who felt their milk supply was insufficient at birth were significantly less likely to be satisfied with breastfeeding compared to those who felt their milk supply was insufficient at 6 months, with a strong and statistically significant 92% decrease in satisfaction (OR = 0.08; $p < .003$).
2	Challenges for influencing exclusive breastfeeding practice among lactating mothers with infants aged 0–6 months in Borama District, Somaliland: A cross-sectional study (Hassan & Hossain, 2023)	Somaliland, 2023	Quantitative, cross-sectional	Exclusive breastfeeding behavior is influenced by the mother's perception of the quantity of breast milk ($p = 0.025$, OR = 0.033)
3	Breastfeeding in primiparous women – expectations and reality: a prospective questionnaire survey (Oberfichtner et al., 2023)	Austria, 2023	Quantitative, prospective study cross-sectional design	The main reason for early cessation of breastfeeding was insufficient milk supply ($p = 0.033$)
4	Exclusive breastfeeding rate and related factors among mothers within maternal health WeChat groups in Jiaying, Zhejiang province, China: a cross-sectional survey (Fu et al., 2022)	China, 2022	Quantitative, cross-sectional	Concern that breast milk alone is not sufficient for infant nutritional needs was associated with lower odds of direct breastfeeding to six months ($p < 0.001$) (OR 0.104)
5	Determinants of Successful Exclusive Breastfeeding for Saudi Mothers: Social Acceptance Is a Unique Predictor (Alyousefi, 2021)	Arab Saudi, 2021	Quantitative, cross-sectional	Breast milk considered non-exclusive was associated with lower rates of exclusive breastfeeding ($p = 0.011$)
6	Barriers in continuing exclusive breastfeeding among working mothers in primary health care in the ministry of health in Al-Ahsa region, Saudi Arabia (Al-Katufi et al., 2020)	Arab Saudi, 2020	Quantitative, cross-sectional	Insufficient breast milk was an obstacle to providing exclusive breastfeeding in 43.5% of research subjects ($p < 0.001$)
7	Factors Influencing the Duration of Breastfeeding Among Polish Women (Tracz & Gajewska, 2020)	Polandia, 2020	Quantitative, cross-sectional	The main reason for stopping breastfeeding was maternal concern about insufficient milk supply

(p<0.001)				
8	Social and Bio-Medical Predictors of Exclusive Breastfeeding Among Nursing Mothers in Lagos and Taraba States, Nigeria (Alabi et al., 2020)	Nigeria, 2020	Quantitative, cross-sectional	Lack of breast milk (p < 0.001) is a significant biomedical predictor in mothers who do not provide exclusive breastfeeding and choose to provide formula milk.
9	The sleeper effect of perceived insufficient milk supply in US mothers (Whipps & Demirci, 2021)	USA, 2020	Quantitative, cross-sectional	Breastfeeding cessation in multiparas was 9.2 weeks earlier if the mother perceived little breast milk (p = 0.020) and 10.6 weeks earlier in primiparas if the mother perceived little breast milk (p = 0.019)
10	The relationship between perceived milk supply and exclusive breastfeeding during the first six months postpartum: a cross-sectional study (Sandhi et al., 2020)	Indonesia, 2020	Quantitative, cross-sectional	Perception of low breast milk supply was significantly associated with discontinuation of exclusive breastfeeding (OR 3.58; p = 0.0001).

DISCUSSION

The literature search described above yielded 10 relevant research articles published between 2020 and 2025. Of the 10 articles found, two came from Saudi Arabia, and one study each from Indonesia, the USA, Nigeria, Poland, China, Austria, and Somaliland. This suggests that the perception of insufficient breast milk supply is a relevant concept across cultures and is a global issue.

Most women report insufficient breast milk supply as the most common problem and the primary reason for premature cessation of exclusive breastfeeding. While the exact prevalence of Perception of Insufficient Milk (PIM) is unknown (reportedly between 30% and 80% of women), many researchers describe the PIM rate as the percentage of mothers who wean early due to the perception of insufficient breast milk supply. These rates ranged from 26% to 75.3% of mothers who had weaned at the completion of their respective studies (Hassan & Hossain, 2023), (Oberfichtner et al., 2023), (Fu et al., 2022), (Bhardwaj & Smitha, 2024), (Tracz & Gajewska, 2020), (Alabi et al., 2020).

Two studies showed that the percentage of mothers who weaned early due to PIM was 59.8% and 55% of the study population (Fu et al., 2022) ; (Hassan & Hossain, 2023). All studies that included the relative frequency of reasons for early discontinuation showed that PIM was one of the top three reasons, along with returning to work and maternal illness. All studies also reported that PIM continues to be the most common problem and the most frequent reason for discontinuing exclusive breastfeeding. In reality, less than 5% of mothers are biologically incapable of producing sufficient breast milk. The reason for insufficient milk production is usually due to poor breastfeeding technique (Oberfichtner et al., 2023).

One study showed that 14% of the total population's continued exclusive breastfeeding was affected by a lack of maternal information about the benefits of exclusive breastfeeding related to infant susceptibility to infection and allergies, and 15% lacked knowledge about the long-term benefits of exclusive breastfeeding for infants, and

this lack of knowledge interfered with the continuation of exclusive breastfeeding. In 86.5% of participants, mothers were aware of the benefits of exclusive breastfeeding for the mother herself (Al-Katufi et al., 2020).

The overall duration or timing of discontinuation due to PIM is also of particular concern. According to national data, exclusive breastfeeding discontinuation occurs in the first month of life. One study showed that of the 61.5% of the total population who initiated formula feeding due to PIM in children under 6 months, 30% initiated formula feeding when the child was less than 1 month old, 7% at 1–2 months, 18.5% at 2–4 months, and 6% at 4–6 months (Al-Katufi et al., 2020). Another study showed that mothers who weaned a child due to PIM did so for subsequent children, with an average shorter duration compared to mothers who weaned for other reasons. For primiparous mothers, this was associated with an approximately 11–23 week earlier weaning initiation for subsequent children. Meanwhile, for multiparous mothers, PIM-related weaning was associated with approximately 9–10 weeks earlier birth in subsequent children (Whipps & Demirci, 2021).

Exclusivity is another important factor discussed in this literature. Many studies have shown that PIM is correlated with decreased exclusivity. Before stopping breastfeeding, many mothers initiate complementary foods in response to PIM (Alyousefi, 2021), (Bhardwaj & Smitha, 2024), (Alabi et al., 2020), (Whipps & Demirci, 2021). The prevalence of exclusive breastfeeding in these studies ranged from 21% to 71.3% (Sandhi et al., 2020), (Alyousefi, 2021), (Al-Katufi et al., 2020), (Oberfichtner et al., 2023), (Fu et al., 2022), (Tracz & Gajewska, 2020). Late initiation of breastfeeding impacts exclusive breastfeeding rates. Mothers with late initiation of breastfeeding are more likely to experience breast milk shortages due to inconsistent breastfeeding (Bhardwaj & Smitha, 2024).

Perception of breast milk supply is an important factor associated with exclusive breastfeeding in postpartum mothers. This finding is consistent across articles reporting that the perception of insufficient breast milk supply is common among postpartum mothers who do not practice exclusive breastfeeding. In Indonesian culture, mothers tend to believe that smaller breasts produce less milk and that the breast milk of older mothers is of lower quality, which in turn influences mothers' perceptions of insufficient breast milk supply (Sandhi et al., 2020).

The mechanism of perception of insufficient breast milk supply can be explained by a lack of breast stimulation and decreased milk secretion due to reduced breast suction when introducing bottle-feeding (Alyousefi, 2021). The WHO states that the frequency of breastfeeding by the baby is a major factor in milk production. In the first days of a baby's life, breastfeeding frequency may be every 1 to 3 hours, the time required for each breastfeeding session ranges from 10 to 15 minutes, and the mother may need 15 to 20 minutes to express breast milk (Al-Katufi et al., 2020).

Study findings suggest that primiparous mothers may be at higher risk for PIM and cessation of exclusive breastfeeding than multiparous mothers. This may be due to the tendency for first-time mothers to experience delayed lactogenesis compared to mothers who have given birth previously, and primiparous mothers are more likely to experience misperceptions about early feeding. In addition to this increased risk, primiparous mothers were also found to be at higher risk for later cessation of exclusive breastfeeding as a result of PIM. This provides further evidence that first-time motherhood is a highly sensitive time period where environmental inputs and experiences can have a profound impact on later health and well-being (Whipps & Demirci, 2021).

Therefore, there is a need to create a welcoming environment for mothers struggling with breastfeeding difficulties. Wider access to lactation counselors,

nutritionists, and midwives must be ensured. Mothers should not be left alone when they experience breastfeeding difficulties. PIM prevention can be achieved through interventions designed to improve breastfeeding self-efficacy and address misperceptions related to breast milk supply and infant breastfeeding behavior. Interventions focused on improving breastfeeding self-efficacy may be particularly effective (Whipps & Demirci, 2021).

CONCLUSION

PIM (Perception of Insufficient Milk) is one of the most common and influential reasons for low duration and exclusivity of breastfeeding in most parts of the world due to lack of knowledge regarding breast milk sufficiency and lack of previous breastfeeding experience. These causes can be changed through education and interventions carried out by health workers by providing guidance to differentiate between physiological breast milk and breast milk that is considered insufficient, teaching correct breastfeeding techniques, alleviating concerns about insufficient breast milk nutrition for babies, and increasing self-efficacy in breastfeeding mothers, thus, appropriate and sustainable interventions from health workers can not only reduce the perception of breast milk insufficiency, but also have the potential to increase the success of exclusive breastfeeding and extend the duration of breastfeeding, thereby providing optimal benefits for the health of mothers and babies.

RECOMMENDATION

Health promotion efforts through health education on exclusive breastfeeding, including ways to increase milk production, need to be intensified to improve women's confidence and perception of their success in providing exclusive breastfeeding.

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