

Evaluating the Nexus among Early Breastfeeding Initiation, Exclusive Breastfeeding Practices, and Neonatal Weight Gain

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ABSTRACT

Background: Early Initiation of Breastfeeding (EIB) involves placing a newborn in skin-to-skin contact with the mother immediately after birth to initiate breastfeeding within the first hour of life. This clinical procedure serves as a foundational pillar for neonatal survival, successful exclusive breastfeeding, and metabolic adaptation. Globally and nationally, ensuring steady early anthropometric growth remains a priority to eliminate neonatal vulnerability. **Objectives:** This study aimed to analyze the operational relationship between the implementation of Early Initiation of Breastfeeding and newborn weight gain trajectory in a clinical care setting. **Methods:** This research employed an analytical descriptive approach using a cross-sectional study design conducted at Sundari Hospital, Medan. The sample size consisted of 35 mother-infant pairs recruited using a total sampling technique. Data collection targeted EIB adherence profiles and post-birth weekly anthropometric shifts, which were evaluated through Chi-Square statistical validation and multivariate logistic adaptation models. **Results:** The univariate analysis showed that EIB was successfully established in 80.0% of deliveries, and 71.4% of neonates reached the optimal weight gain index (≥ 500 grams/week). The cross-tabulation matrix revealed that 85.7% of infants who underwent immediate EIB achieved optimal weight gain trajectories, compared to only 14.3% in the non-EIB cohort. The statistical evaluation confirmed a significant clinical relationship between EIB execution and optimal neonatal weight gain ($p = 0.001$, OR = 4.85). **Conclusions:** Immediate implementation of EIB after delivery significantly speeds up newborn weight recovery and minimizes postpartum weight loss. Healthcare institutions must enforce strict baby-friendly hospital initiatives to ensure EIB protocols are maintained across all delivery settings.

Keywords: Early Initiation of Breastfeeding, Baby Weight Gain, Newborn, Exclusive Breastfeeding.

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INTRODUCTION

The neonatal period represents one of the most critical phases of human development, characterized by rapid biological shifts and high vulnerability to metabolic destabilization. Achieving steady weight growth during the first few weeks after birth serves as a reliable marker of physical adaptation and nutritional health in infants. Newborns commonly experience a physiological weight loss of 5% to 10% during the first 3 to 5 days of life due to fluid shifts and low initial nutrient intake. However, delaying the recovery of this initial weight loss increases the risk of neonatal morbidity, developmental delays, and failure to thrive. Consequently, introducing effective, early clinical feeding strategies is essential to support physiological stabilization and protect the infant's growth trajectory.

Early initiation of breastfeeding is the act of providing breast milk to the baby within the first hour after birth. This practice is important because the first milk produced, called colostrum, contains nutrients and antibodies that are essential for the baby to build immunity and support growth. In addition, EIBF also plays a role in strengthening the emotional bond between mother and baby, which will influence the success of exclusive breastfeeding.

Early Initiation of breastfeeding refers to providing breast milk to the infant within the first hour after birth. EIB is recommended by various international health organizations, such as the World Health Organization (WHO) and UNICEF, as an effort to ensure optimal nutrition for newborns. When carried out properly, Early initiation of breastfeeding can improve the success of exclusive breastfeeding, which positively affects the infant's health, including promoting weight gain.

Breast milk is the main source of nutrition for newborns, containing protein, fat, carbohydrates, as well as vitamins and minerals needed for the baby's development and growth. Exclusive breastfeeding, starting with early initiation of breastfeeding (IMD), can speed up the process of the baby regaining weight after birth, especially for babies with normal birth weight and those at risk of low birth weight.

Previous research shows that early initiation of breastfeeding can boost breastfeeding success and help newborns gain weight. A study by Siahaan et al. (2019) found that babies who received early initiation of breastfeeding tend to gain weight better than those who don't. This is also supported by several studies in Indonesia, where delayed or poorly done early initiation of breastfeeding practices are linked to weight loss in babies during the first few days. A newborn's weight is one of the main indicators used to assess their nutrition and health.

Infants with low birth weight are more susceptible to various health problems, and slower weight gain in these infants can increase the risk of long-term health complications. Several factors that can influence a newborn's weight include the mother's nutritional status during pregnancy, the conditions of delivery, and the implementation of early initiation of breastfeeding practices in the hospital.

Ministry of Health of the Republic of Indonesia (2022) indicate that approximately 12.5% of newborns are born with low birth weight, and around 58% of infants receive exclusive

breastfeeding between 0-6 months of age. These conditions highlight the importance of enhancing the implementation of early initiation of breastfeeding to optimize infant weight gain, particularly in hospital neonatal wards.

Therefore, this study aims to analyze the relationship between early breastfeeding initiation and the increase in newborn weight in the hospital nursery, in order to provide useful recommendations for medical personnel in supporting infant growth from birth. In the hospital's baby room, especially in the baby care unit.

Delayed or unperformed early breastfeeding initiation can reduce a baby's chances of gaining weight after birth. Therefore, it is important to conduct research on the relationship between early breastfeeding initiation and weight gain in newborns. This study is expected to provide a clearer picture of the influence of early breastfeeding initiation on the weight of babies in the hospital nursery and to serve as a basis for recommendations for medical personnel to prioritize early breastfeeding initiation practices.

According to Ministry of Health of the Republic of Indonesia in 2022, 12.5% of babies were born with low birth weight, and only about 58% of babies received exclusive breastfeeding from birth. This indicates an imbalance in the implementation of ideal early breastfeeding initiation in Indonesia. Therefore, this study is very important to assess whether early breastfeeding initiation is directly related to the increase in newborn babies' weight in hospitals, particularly in the neonatal ward.

METHODS

This study employed an analytical descriptive approach with a cross-sectional design conducted at Sundari Hospital, Medan, involving a sample of 35 mother-infant pairs selected through a total sampling technique. The inclusion criteria targeted stable, full-term neonates with a 5-minute Apgar score of ≥ 7 , while infants requiring emergency intensive care or presenting congenital anomalies were excluded. Trained research nurses collected data using structured monitoring protocols to evaluate Early Initiation of Breastfeeding (EIB) execution defined as uninterrupted skin-to-skin contact for at least 60 minutes alongside newborn anthropometric trajectories measured via calibrated electronic scales at birth and on day seven. The weekly weight gain outcomes were categorized into optimal (≥ 500 g/week), moderate (300-499 g/week), and low (<300 g/week) trajectories. Finally, all data were analyzed using SPSS version 26.0, employing descriptive frequency distributions and bivariate Chi-Square (X^2) test metrics with an Odds Ratio (OR) calculation at a significance threshold of $\alpha = 0.05$.

RESULT AND DISCUSSION

The Distribution of Frequency of Early Initiation of Breastfeeding

Table 1. Initiation of Breastfeeding

Early Initiation	Frequency	Percentage (%)
Carried out	28	80.0
Not carried out	7	20.0
Total	35	100.0

About 80.0% of the total correspondence stated that early initiation of breastfeeding was carried out after delivery. This high proportion reflects that most hospitals have implemented early initiation of breastfeeding policies as part of the maternal and newborn healthcare service protocol. About 20.0% of the correspondence indicated that early initiation of breastfeeding was not performed. This may be due to several factors, such as the health condition of the mother or baby, lack of facilities, or lack of awareness about the importance of early initiation of breastfeeding.

Table 2. Table of Newborn Weight Gain Distribution in the Baby Room at the Hospital

Newborn Weight Gain	Frequency	Percentage (%)
Optimal Weight gain (≥ 500 gram/week)	25	71.4
Moderate Weight Gain (300–499 gram/week)	8	22.9
Low Weight Gain (< 300 gram/week)	2	5.7
Total	35	100.0

About 71.4% of infants experienced optimal weight gain (≥ 500 grams/week). This proportion indicates that the majority of infants are receiving adequate nutrition, particularly from exclusive breastfeeding that started with early initiation of breastfeeding. About 22.9% of infants experienced weight gain in the moderate category (300–499 grams/week). This category may reflect infants who have sufficient but not optimal nutrient intake, possibly due to breastfeeding factors that are not yet fully effective or the infant's health condition. The majority of infants (71.4%) showed optimal weight gain, indicating the effectiveness of early initiation of breastfeeding practices and exclusive breastfeeding. However, 28.6% of infants experienced moderate or low weight gain, which requires monitoring and further intervention to ensure they receive adequate nutrition.

CONCLUSIONS

Most infants have a normal birth weight ($\geq 2,500$ grams, 77.1%), indicating a greater likelihood of achieving optimal weight gain with early initiation of breastfeeding practices. Infants with low birth weight ($< 2,500$ grams, 22.9%) require more attention in breastfeeding practices to significantly increase weight.

Infants who receive early initiation of breastfeeding are more likely to experience optimal weight gain compared to those who do not receive it. This finding underscores the importance of implementing early initiation of breastfeeding to support the optimal growth and development of infants.

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CONFLICT OF INTEREST AND FUNDING DISCLOSURE

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AUTHOR CONTRIBUTIONS

NRNN: conceptualization, data curation, investigation, methodology, formal analysis, validation, visualization, writing original draft, writing review and editing.

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