



The Effect of Exclusive Breastfeeding on the Growth of Infants Aged 0–6 Months

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Abstract. Exclusive breastfeeding is recognized as the optimal feeding practice during the first six months of life because it provides complete nutrition required to support infant growth and development. However, the implementation of exclusive breastfeeding remains suboptimal in many communities, potentially affecting infant nutritional status and growth. This study aimed to analyze the effect of exclusive breastfeeding on the growth of infants aged 0–6 months in the working area of Dolik Primary Health Center, South Halmahera Regency. A quantitative study with a cross-sectional correlational design was conducted involving 30 mothers with infants aged 0–6 months. Data on breastfeeding practices were collected through interviews, while infant growth was assessed based on weight gain measurements. Univariate analysis was used to describe respondent characteristics and study variables, whereas the relationship between exclusive breastfeeding and infant growth was analyzed using Kendall's tau-b test. The results showed that more than half of the mothers practiced exclusive breastfeeding, and most infants experienced appropriate weight gain. Statistical analysis indicated a significant positive relationship between exclusive breastfeeding and infant growth, suggesting that infants who received exclusive breastfeeding tended to achieve better weight gain than those who did not. These findings highlight the importance of promoting exclusive breastfeeding as an effective strategy to improve infant nutritional status and support optimal growth during the first six months of life. Strengthening breastfeeding education and support programs may contribute to improving exclusive breastfeeding practices and child health outcomes.

Keywords: Breastfeeding; Exclusive Breastfeeding; Infant Growth; Infant Weight Gain; Nutrition.

1. Introduction

The first six months of life represent a critical period for infant growth and development, during which adequate nutrition plays a fundamental role in achieving optimal physical outcomes. Breast milk is recognized as the ideal source of nutrition because it provides balanced macronutrients, bioactive compounds, immune factors, and hormones that support healthy growth and protect infants from various health problems. The nutritional composition of breast milk has been shown to contribute significantly to normal physical growth and favorable body composition during infancy (Brockway et al., 2024; Chen et al., 2024).

Exclusive breastfeeding, defined as providing only breast milk without any additional food or drink for the first six months of life, is widely recommended as the optimal infant feeding practice. Numerous studies have demonstrated that exclusive breastfeeding is positively associated with improved weight gain, linear growth, and overall physical development during early infancy. Infants who receive exclusive breastfeeding generally exhibit healthier growth patterns than those who receive mixed feeding or infant formula (Ahmed et al., 2023; Sabattina et al., 2024).

Appropriate breastfeeding practices are particularly important because infant growth during the first months of life reflects nutritional adequacy and overall health status. Growth indicators, especially body weight, are commonly used to assess whether infants receive sufficient nutrition to support normal development. A prospective cohort study among moderately low birth weight infants reported that successful breastfeeding was associated with improved growth trajectories during infancy, highlighting the importance of breastfeeding across different infant populations (North et al., 2024). Furthermore, evidence indicates that although growth patterns may vary among populations, adequate infant nutrition through

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breastfeeding contributes to consistent and healthy growth during the first two years of life (Norris et al., 2024).

Despite the well-established benefits of exclusive breastfeeding, its implementation remains suboptimal in many communities. Various maternal factors, including limited knowledge, concerns regarding breast milk sufficiency, cultural beliefs, and the early introduction of formula milk, continue to reduce exclusive breastfeeding practices. Consequently, some infants may not receive optimal nutrition during the most critical period of growth, potentially affecting their weight gain and overall development (Ahmed et al., 2023; Sabattina et al., 2024).

Considering the essential role of exclusive breastfeeding in promoting healthy infant growth, further investigation is needed to evaluate its relationship with infant weight gain in different community settings. Therefore, this study aims to analyze the effect of exclusive breastfeeding on the growth of infants aged 0–6 months by examining the association between exclusive breastfeeding practices and infant weight gain. The findings are expected to provide evidence that supports breastfeeding promotion programs and contributes to improving infant nutritional status during the early stages of life.

2. Literature Review

Exclusive Breastfeeding

Exclusive breastfeeding is defined as feeding infants only breast milk during the first six months of life without providing additional food or beverages, except for oral rehydration solution, vitamins, minerals, or prescribed medicines. Breast milk is considered the most appropriate source of nutrition because it contains a complete balance of carbohydrates, proteins, fats, vitamins, minerals, and bioactive substances required to support infant growth and development. In addition to its nutritional value, breast milk also contains antibodies and immunological components that protect infants against infections during the early stages of life (Ahmed et al., 2023).

Exclusive breastfeeding has consistently been recognized as the optimal feeding practice for promoting healthy infant growth. Infants who receive exclusive breastfeeding generally experience better nutritional status and more favorable physical development than infants who receive mixed feeding or infant formula. Research conducted in Indonesia also demonstrated that exclusive breastfeeding significantly contributes to better growth and developmental outcomes among infants, supporting recommendations that exclusive breastfeeding should be maintained during the first six months of life (Sabattina et al., 2024).

Breast Milk Composition and Nutritional Value

Human breast milk contains essential macronutrients, including carbohydrates, proteins, and fats, as well as micronutrients and numerous bioactive compounds that contribute to infant growth. Unlike infant formula, the composition of breast milk changes dynamically according to the infant's developmental stage, ensuring that nutritional requirements are continuously met. These adaptive characteristics enable breast milk to support healthy physical growth while also influencing infant body composition during the first years of life (Brockway et al., 2024).

The quality of breast milk is also associated with variations in infant growth indicators. Chen et al. (2024) reported that differences in breast milk composition between mothers of premature and full-term infants influence physical growth outcomes, including weight-for-age and length-for-age Z-scores. These findings indicate that the nutritional composition of breast milk not only supports survival during infancy but also plays an essential role in determining healthy growth patterns.

Infant Growth

Infant growth refers to the increase in body size that occurs as part of normal biological development. Growth is commonly evaluated using anthropometric indicators, including body weight, body length, head circumference, and body mass index according to age. During the first six months of life, body weight is one of the most sensitive indicators because rapid growth requires adequate nutritional intake to support tissue formation and physiological development (Norris et al., 2024).

Healthy infant growth is influenced by multiple factors, including genetics, maternal health, environmental conditions, and nutritional intake. Among these determinants, adequate nutrition during early infancy remains one of the most important factors influencing optimal growth. Norris et al. (2024) emphasized that although growth trajectories vary across populations, appropriate infant feeding practices, particularly breastfeeding, contribute

substantially to healthy growth and favorable body composition during the first two years of life.

The Relationship Between Exclusive Breastfeeding and Infant Growth

Previous studies have consistently demonstrated a positive association between exclusive breastfeeding and infant physical growth. Ahmed et al. (2023) found that infants who received exclusive breastfeeding exhibited significantly better physical growth than infants who did not receive exclusive breastfeeding. These findings indicate that breast milk provides sufficient nutrients to support healthy weight gain and overall physical development during early infancy.

Evidence from longitudinal and cohort studies further supports these findings. North et al. (2024) observed that breastfeeding was positively associated with improved growth trajectories among moderately low birth weight infants, suggesting that breastfeeding provides important nutritional benefits even in vulnerable populations. Likewise, Sabattina et al. (2024) reported significant differences in growth and development between infants receiving exclusive breastfeeding and those receiving non-exclusive feeding, reinforcing the role of exclusive breastfeeding in achieving optimal infant growth.

Factors Affecting Infant Growth

Infant growth is a multifactorial process influenced by nutritional, biological, maternal, and environmental factors. Adequate nutritional intake during the first six months of life is one of the primary determinants of optimal growth because this period is characterized by rapid physical development. Human milk provides an ideal balance of macronutrients and micronutrients required to support normal weight gain, body composition, and physiological maturation. In addition, the composition of breast milk changes according to the infant's developmental needs, ensuring continuous nutritional support throughout early infancy (Brockway et al., 2024; Chen et al., 2024).

Besides nutrition, infant growth is also affected by birth weight, gestational age, maternal health, and environmental conditions. North et al. (2024) demonstrated that breastfeeding positively influences growth even among moderately low birth weight infants, suggesting that breastfeeding can help improve growth trajectories in nutritionally vulnerable populations. Similarly, Norris et al. (2024) emphasized that although genetic and environmental factors contribute to variations in infant growth, appropriate breastfeeding practices remain one of the most important modifiable factors associated with healthy physical growth. Therefore, promoting exclusive breastfeeding is essential to optimize infant growth during the first six months of life (Ahmed et al., 2023; Sabattina et al., 2024).

3. Research Method

This study employed a quantitative approach with a correlational analytic design using a cross-sectional framework. The primary objective of this study was to analyze the effect of exclusive breastfeeding on the growth of infants aged 0–6 months (Resvick et al., 2024). The study was conducted in the working area of Dolik Primary Health Center, specifically in Posi Posi Village, South Halmahera Regency. The selection of this topic was based on a preliminary study conducted on May 19, 2026, which indicated that 50% of mothers did not provide exclusive breastfeeding due to concerns about insufficient breast milk quality, misconceptions regarding infant crying, and the introduction of formula milk before the age of 6 months.

The population and sample of this study consisted of mothers with infants aged 0–6 months in the working area of Dolik Primary Health Center. Based on data processed as valid in the statistical analysis, the total sample determined and analyzed was 30 respondents (N=30). The majority of respondents were in the healthy reproductive age group of 20–35 years (93.3%), primigravida status (53.3%), had a senior high school educational background (50.0%), and were predominantly unemployed or housewives (83.3%) (Juriyah et al., 2023).

The research variables consisted of an independent variable, namely exclusive breastfeeding (categorized as "Yes" and "No"), and a dependent variable, namely infant growth measured through the indicator of weight gain. The data collection instruments used were interviews to identify breastfeeding status and anthropometric measurements to assess infant weight gain (Sanggelerang et al., 2025). Data analysis was carried out using statistical software through the following two levels : Univariate analysis was used to describe the frequency distribution of respondent characteristics, breastfeeding status, and weight gain categories (González et al., 2024). Bivariate analysis was conducted to test the significance of the relationship between exclusive breastfeeding and infant weight gain using the Kendall's tau_b statistical test (Arguelles-Lopez et al., 2025). The test result was considered statistically significant if the significance value (p-value) was less than the threshold of $\alpha=0.01$.

4. Result And Discussion

Data analysis is a systematic process of processing and interpreting collected data in order to provide a clear overview of the phenomenon under study and to scientifically prove the research hypothesis. In this study, data analysis was used to statistically demonstrate whether there is a real relationship between exclusive breastfeeding and weight gain (growth) in infants aged 0–6 months in Posi Posi Village (Nadiro et al., 2025). The results of this analysis are important for evaluating the effectiveness of maternal feeding practices in meeting the nutritional needs of infants during their critical golden growth period (Zhang et al., 2024).

Results of Data Analysis

Univariat Analysis

Univariate analysis was used to describe the demographic characteristics of respondents and the frequency distribution of research variables independently.

Table 1. Distribution of Demographic Characteristics and Research Variables (n=30).

Characteristics	Frequency (n)	Percentage (%)	Cumulative (%)
Age			
<20 years	1	3.3	3.3
20–35 years	28	93.3	96.7
>35 years	1	3.3	100.0
Total	30	100.0	-
Gravida			
Primigravida	16	100.0	53.3
Multigravida	14	46.7	100.0
Total	30	53.3	-
Education Level			
Elementary School	6	20.0	20.0
Junior High School	5	16.7	36.7
Senior High School	15	50.0	86.7
Higher Education	4	13.3	100.0
Total	30	100.0	-
Occupation			
Working	5	16.7	16.7
Not Working (Housewife)	25	83.3	100.0
Total	30	100.0	-
Attitude Toward Breastfeeding			
Positive	19	53.3	53.3
Negative	11	46.7	100.0
Total	30	100.0	-
Exclusive Breastfeeding			
Yes	16	53.3	53.3
No	14	46.7	100.0
Total	30	100.0	-
Infant Weight Gain			
Gaining Weight	20	66.7	66.7
Not Gaining Weight	10	33.3	100.0
Total	30	100.0	-

Based on Table 1, the majority of respondents were in the productive age group of 20–35 years (93.3%), with the highest educational background being senior high school graduates (50.0%) and housewife status (83.3%). A total of 53.3% of mothers provided exclusive breastfeeding, and overall 66.7% of infants experienced weight gain according to growth indicators.

Bivariat Analysis

Bivariate analysis was conducted to test the correlation between exclusive breastfeeding and infant weight gain using the Kendall's tau_b test.

Table 2. Kendall's tau_b Correlation Test Results: Exclusive Breastfeeding and Infant Weight Gain (n=30).

		Exclusive Breastfeeding	Infant Weight Gain
Kendall's tau_b	Correlation	1.000	.614**
	Coefficient		
	Sig. (2-tailed)	—	.001
	N	30	30

** Correlation is significant at the 0.01 level (2-tailed)

The statistical test results showed a Correlation Coefficient of 0.614 with a Sig. (2-tailed) value of 0.001. Since the significance value (0.001) < 0.01, it can be concluded that there is a strong and significant relationship between exclusive breastfeeding and weight gain in infants aged 0–6 months in the working area of Dolik Primary Health Center.

Discussion

The findings of this study indicate that exclusive breastfeeding plays a significant role in supporting infant physical growth, as demonstrated by a statistically significant correlation ($p=0.001$) (Resvick et al., 2024). These findings clarify the problem identified in the May 2026 preliminary study, where 50% of mothers in Posi Posi Village were recorded as not providing exclusive breastfeeding.

Based on the analysis results, although the majority of mothers held positive attitudes toward breastfeeding (63.3%), 46.7% still did not provide exclusive breastfeeding. This is consistent with the initial research findings, where the primary factors contributing to exclusive breastfeeding failure included maternal concerns about breast milk quality, discarding of colostrum, and the misconception that a crying infant always signals thirst or hunger, leading to formula milk introduction before the infant reached 6 months of age (Anggreida & Herwanto, 2024).

Statistically, a correlation coefficient of 0.614 indicates a positive relationship, meaning that the more consistently a mother provides exclusive breastfeeding, the greater the likelihood of optimal infant weight gain (Bin Nasir & Ado, 2025). Therefore, education regarding the nutritional adequacy of breast milk and strategies for addressing maternal anxiety are greatly needed in the working area of Dolik Primary Health Center to improve exclusive breastfeeding coverage and infant nutritional status.

5. Conclusion

Conclusion

This study concludes that exclusive breastfeeding plays an important role in supporting the growth of infants aged 0–6 months. Infants who receive exclusive breastfeeding are more likely to achieve appropriate growth during early infancy because breast milk provides complete nutritional requirements necessary for physical development. These findings reinforce the importance of exclusive breastfeeding as the recommended feeding practice during the first six months of life and contribute to the growing body of evidence regarding its role in promoting optimal infant health.

The findings of this study provide practical implications for maternal and child health programs by emphasizing the need to strengthen breastfeeding promotion and support within communities. Improving mothers' understanding of the benefits of exclusive breastfeeding and ensuring continuous assistance from healthcare professionals may contribute to better breastfeeding practices and ultimately improve infant growth outcomes. Therefore, exclusive breastfeeding should remain a priority in public health efforts aimed at enhancing child nutrition and supporting healthy growth during the earliest stages of life.

Recommendations

Based on the findings of this study, healthcare professionals, particularly midwives and primary healthcare providers, should strengthen breastfeeding promotion and counseling programs for pregnant women and mothers with infants. Educational interventions should focus on increasing maternal knowledge regarding the nutritional adequacy of breast milk, the benefits of exclusive breastfeeding, proper breastfeeding techniques, and the management of common breastfeeding challenges. Community-based health education and continuous family support are also recommended to encourage mothers to maintain exclusive breastfeeding throughout the first six months of life.

Future research is recommended to involve larger sample sizes and multiple healthcare settings to improve the generalizability of the findings. In addition, further studies should consider evaluating other factors that may influence infant growth, such as maternal nutritional status, socioeconomic conditions, birth weight, complementary feeding practices, and

maternal health. Longitudinal study designs are also suggested to examine the long-term effects of exclusive breastfeeding on child growth and development beyond the first six months of life, thereby providing stronger evidence for the development of maternal and child health policies.

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