

RELATIONSHIP BETWEEN EXCLUSIVE BREASTFEEDING AND INFANT WEIGHT GAIN AT AGE 0-6 MONTHS

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ABSTRAK

The growth of infant body weight from 0 to 6 months of age is a key indicator for assessing nutritional adequacy and overall health in early life. Exclusive breastfeeding, as recommended by the World Health Organization (WHO), is believed to fully meet infants' nutritional needs and provide immunological protection. This study aims to determine the relationship between exclusive breastfeeding and infant weight gain at the Posyandu in Danau Usung Village. The study used a correlational analytic design with a cross-sectional approach, involving 50 infants selected through purposive sampling. Data were collected through interviews, observations, and weight measurements. The results showed that among the 30 infants who received exclusive breastfeeding, 93.3% had normal body weight, while in the group of infants who did not receive exclusive breastfeeding, only 75% had normal body weight. Statistical analysis yielded a p-value of 0.013 ($p < 0.05$), indicating a significant relationship between exclusive breastfeeding and infant weight gain. These findings affirm the important role of exclusive breastfeeding in supporting optimal nutritional status and growth in infants. In addition to providing complete nutrition, breast milk also protects infants from infections and digestive disorders, contributing to weight gain consistent with the WHO growth curve. The results of this study are expected to serve as a foundation for enhancing maternal education regarding the importance of exclusive breastfeeding during the first six months of a baby's life.

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INTRODUCTION

Infant growth at the age of 0-6 months is an important indicator in assessing the health status and early life development. During this period, infants experience rapid growth in terms of body weight, body length, and gross and fine motor development (Mexitalia et al., 2021). One of the main factors that plays a role in infant growth is the pattern of nutritional intake, especially in the early stages of life when the infant's

digestive and immunological systems are still very sensitive and not fully developed (Arsulfa et al., 2024; Riza, 2022).

Breast milk (ASI) has long been known as the best food for newborns up to six months of age. WHO and UNICEF recommend exclusive breastfeeding for the first six months of life, without additional food or drink, including water. Breast milk contains all the nutrients needed by infants in the appropriate amounts and proportions, and is equipped with natural antibodies that are important for protection against various infectious diseases (Camacho-Morales et al., 2021; Lyons et al., 2020).

Recent studies have reinforced the importance of exclusive breastfeeding in supporting optimal infant weight growth. The data obtained showed that the majority of infants who received exclusive breastfeeding had a weight within the normal range, while the proportion of infants with abnormal weight was higher in the group that did not receive exclusive breastfeeding (Ahmed, Hamid, Jothi Shanmugam, et al., 2023; Maulida, 2022). Exclusive breastfeeding for the first six months of a baby's life has long been recommended by the World Health Organization (WHO) as the gold standard in providing early nutrition. Breast milk not only provides optimal nutrition but also contains immunological components that protect babies from various infections and diseases. However, although the benefits of exclusive breastfeeding are widely known, its success rate is still low in various countries, including Indonesia, which can have an impact on infant growth and development (WHO, 2021).

Various studies have shown that babies who receive exclusive breastfeeding tend to have better weight and nutritional status compared to babies who do not receive exclusive breastfeeding (M. Azad et al., 2018). However, in some cases, babies are still found to experience suboptimal weight gain even though they have been given exclusive breastfeeding, which raises questions about other factors that influence this growth (Yeung et al., 2017).

Infant weight gain is the most commonly used parameter in assessing the adequacy of nutritional intake and health status of babies. Weight gain in accordance with WHO growth standards is one sign that babies are getting adequate nutrition and experiencing normal development. Therefore, the relationship between exclusive breastfeeding and weight gain is important to study further (Sehhatie et al., 2020).

Exclusive breastfeeding for six months has also been shown to reduce the risk of gastrointestinal infections in babies. A study in Belarus showed that babies who were exclusively breastfed for six months had a lower incidence of gastrointestinal infections

than babies who were only exclusively breastfed for three months. No significant differences were found in the risk of respiratory tract infections or atopic eczema (Kramer et al., 2003).

In Indonesia, the coverage of exclusive breastfeeding has not yet reached the expected target. Data from Riskesdas shows that only a portion of infants receive exclusive breastfeeding for six full months. Factors such as maternal knowledge, employment, family support, and myths about breastfeeding are the main obstacles to the optimal implementation of exclusive breastfeeding (Gayatri, 2021; Idris & Astari, 2023).

Exclusive breastfeeding also plays a role in regulating the baby's appetite and energy intake naturally. Babies who are exclusively breastfed tend to have better intake regulation mechanisms, reducing the risk of overfeeding that can occur with formula feeding. Thus, exclusive breastfeeding not only supports optimal physical growth but also helps in the formation of healthy eating patterns from an early age (Ahmed, Hamid, Shanmugam, et al., 2023).

The inconsistency in the practice of exclusive breastfeeding and the varying results of infant weight gain raise the need to evaluate more comprehensively whether there is a significant relationship between the two. This is important as a basis for making maternal and child health policies, as well as to increase public awareness of the importance of exclusive breastfeeding (Larnkjær et al., 2025).

There are challenges in implementing exclusive breastfeeding, especially related to the lack of social support and adequate information for breastfeeding mothers. Factors such as the return of mothers to work, the lack of breastfeeding facilities in the workplace, and myths and misconceptions about breastfeeding can hinder the success of exclusive breastfeeding. Therefore, ongoing education and support efforts are needed to increase awareness and practice of exclusive breastfeeding in the community (Gunnarsdottir et al., 2010). This study aims to determine the relationship between exclusive breastfeeding and infant weight growth at the age of 0-6 months.

RESEARCH METHODS

This study is an analytical study with a correlational approach using a cross-sectional design. The subjects in this study were all infants aged 0–6 months who were registered at the Posyandu in Danau Usung Village during the study period. Based on the available data, there were approximately 100 infants in that age group, and from that number, 50 infants were selected as samples through a purposive sampling technique,

namely the selection of samples based on certain objectives and criteria. The inclusion criteria in this study included infants aged 0–6 months who were registered at the local Posyandu, both those who received exclusive breastfeeding and those who did not, as well as mothers who were willing to provide the required information regarding the history of breastfeeding and the development of their infants' weight. The data collection process was carried out through direct observation, interviews with the infants' mothers, and measuring the infants' weight using scales according to standard procedures.

RESULTS AND DISCUSSION

Table 1. Respondent characteristics

Characteristics	n	%
Baby Age		
Age 0-3 Months	25	50
Age 4-6 Months	25	50
Baby Gender		
Man	28	56
Woman	22	44
Duration of Exclusive Breastfeeding		
Exclusive Breastfeeding	30	60
Not Exclusive Breastfeeding	20	40

Table 1 shows the characteristics of respondents in the study consisting of 50 babies. Based on age, the number of babies aged 0–3 months and 4–6 months was 25 babies or 50% respectively. In terms of gender, the majority of babies were male, 28 babies (56%), while females were 22 babies (44%). In terms of the duration of breastfeeding, 30 babies (60%) received exclusive breastfeeding, while 20 babies (40%) were not given exclusive breastfeeding by their mothers.

Table 2. Relationship between exclusive breastfeeding and infant weight growth at the age of 0-6 months

Breastfeeding Status	Baby Weight				P Value
	Nomal		Abnormal		
	n	%	n	%	
Exclusive Breastfeeding	28	93,3	2	6,7	0,013
Not Exclusive Breastfeeding	15	75	5	25	

Table 2 shows that there is a significant difference between the status of exclusive breastfeeding and infant weight growth. Of the 30 infants who were exclusively breastfed, 28 infants (93.3%) had normal weight, while only 2 infants (6.7%) had abnormal weight. Meanwhile, of the 20 infants who did not receive exclusive breastfeeding, only 15 infants (75%) had normal weight and 5 infants (25%) had abnormal weight. The results of the

statistical test showed a p value of 0.013, which means that there is a statistically significant relationship between exclusive breastfeeding and infant weight growth (because $p < 0.05$). The results of this study indicate a significant relationship between exclusive breastfeeding and infant weight growth in 0–6 months of age. Based on the data presented in Table 2, the majority of infants who received exclusive breastfeeding (93.3%) had normal weight. In contrast, infants who did not receive exclusive breastfeeding showed a higher percentage of abnormal weight, which was 25%. The p-value of 0.013 confirms that this relationship is statistically significant.

Exclusive breastfeeding is known as the best source of nutrition for babies during the first six months of life. The content of breast milk not only meets the needs of energy and essential nutrients such as protein, fat, and vitamins, but also contains natural antibodies that help prevent infection and disease. With complete and easily absorbed nutrition, breast milk supports optimal weight gain in babies (Khotimah et al., 2024). This is proven in a study by Astriana and Afriani (2022) which found that babies with exclusive breastfeeding showed better weight gain than those who were given formula milk or additional food before the age of 6 months.

The findings in this study are in line with a previous study by Anggraeni and Benghe (2022) which stated that exclusive breastfeeding can significantly increase baby weight. They stated that the process of absorbing nutrients from breast milk is more efficient and safe because it is free from the risk of contamination. Therefore, babies who receive exclusive breastfeeding tend to be healthier and experience weight gain in accordance with the WHO growth chart.

On the other hand, babies who do not receive exclusive breastfeeding tend to experience slower weight gain. This can be caused by several factors, such as providing complementary foods (MP-ASI) too early or not in accordance with nutritional standards. WHO (2021) emphasized that providing MP-ASI before the age of six months can increase the risk of diarrhea, food allergies, and impaired nutrient absorption, which can ultimately inhibit infant weight gain (Artikasari et al., 2021).

The high proportion of infants with normal weight in the group that was exclusively breastfed reflects the important role of educating mothers about the benefits of breastfeeding. Mothers' knowledge about the correct way to breastfeed, frequency, and the importance of maintaining exclusive breastfeeding for the first six months has been shown to contribute to achieving optimal infant nutritional status (Da Costa Vaz Pereira et al., 2023; Shofiya et al., 2020).

Exclusive breastfeeding for the first six months of a baby's life has been recognized as an important practice that supports optimal growth and development of babies. Exclusive breastfeeding not only provides the necessary nutrients but also provides protection against various diseases and infections. Research shows that babies who receive exclusive breastfeeding tend to have better growth and development status compared to babies who do not receive exclusive breastfeeding (Abidah & Novianti, 2020). A study in Surabaya, Indonesia, found that babies who were exclusively breastfed showed significantly better growth and development status compared to babies who were not exclusively breastfed (Abidah & Novianti, 2020). This is in line with findings in Kenya, where exclusive breastfeeding was associated with better nutritional status and lower morbidity patterns in infants aged 0-6 months (Ayisi & Wakoli, 2014).

In Malawi, duration of exclusive breastfeeding for the first six months of life was associated with increased infant height, although it did not significantly affect weight gain (Kamudoni et al., 2014). A study in Brazil also showed that exclusively breastfed infants had adequate growth, with an average weight above the 50th percentile of the NCHS growth curve at six months of age (Marques et al., 2004).

A study in Sudan found that 96.2% of exclusively breastfed infants had a weight according to the CDC growth chart, and all infants in this group also had normal height. This confirms that exclusive breastfeeding plays a significant role in supporting infant weight and height growth, although it has no effect on head circumference (Ahmed, Hamid, Jothi Shanmugam, et al., 2023).

Another study showed that infants who received exclusive breastfeeding tended to experience faster weight and length growth in the early months of life. However, this difference tended to decrease and disappeared by 12 months of age, where no growth deficit was found in the group that was not exclusively breastfed. This shows that exclusive breastfeeding provides growth benefits in the early stages of a baby's life (Kramer et al., 2002).

In preterm or low birth weight infants, evidence regarding the optimal duration of exclusive breastfeeding is limited. A meta-analysis showed no significant difference in growth between infants who were exclusively breastfed for four months versus six months, but the available data are very limited and of low quality (Yang et al., 2022).

In infants with low birth weight, breastfeeding continues to support growth, although there is limited evidence for catch-up growth in the first six months. However, in general, breastfeeding is still recommended to support the growth and development of

infants in this group (Resvick et al., 2025). The rare cases where exclusively breastfed infants gained excessive weight suggest that over time, the infant's weight and body composition tend to normalize. A decrease in body mass index and body fat occurs simultaneously with an increase in fat-free mass, indicating a process of normalization of growth (Larnkjær et al., 2025).

Studies show that most infants who are exclusively breastfed have a weight within the normal range on the growth chart, namely between the 10th and 90th percentiles, and a height that is also in accordance with international growth standards. Exclusive breastfeeding provides ideal and easily digestible nutrition, supporting optimal growth without increasing the risk of overweight or obesity later in life.

A meta-analysis suggests that breastfeeding supports growth in low birth weight or preterm infants, although evidence for catch-up growth in the first six months is limited (Resvick et al., 2024). Another study showed that exclusively breastfed infants had a different growth pattern compared to formula-fed infants, with lower initial weight loss and longer time to birth weight recovery (Giugliani, 2019).

The method of breastfeeding also influences infant growth. Infants who receive breast milk directly from the breast have a lower risk of excessive weight gain compared to infants who receive expressed breast milk or formula. The protective effect of exclusive breastfeeding against excess growth is also reduced if the infant receives additional formula (M. B. Azad et al., 2018).

Breastfeeding can be done directly through breastfeeding at the breast or by giving expressed breast milk (expressed breast milk) using various methods. Direct breastfeeding is the most common method, but in certain situations such as mothers having to return to work or babies are unable to breastfeed directly, breast milk can be expressed by hand or using a breast pump, either manual or electric. Expressing breast milk by hand is often considered more comfortable and easier to learn, while electric pumps are widely used because of their efficiency, although some mothers feel uncomfortable with this method (Becker et al., 2016).

Exclusive breastfeeding not only supports healthy weight and height growth, but also protects babies from the risk of infection and long-term health problems. Education and support efforts for mothers, especially in vulnerable groups such as overweight mothers, are very important to increase the prevalence of exclusive breastfeeding and ensure optimal infant growth (Ahmed, Hamid, Shanmugam, et al., 2023).

CONCLUSION AND SUGGESTIONS

There is a significant relationship between exclusive breastfeeding and weight gain in infants aged 0–6 months. Infants who are exclusively breastfed show a higher proportion of normal weight gain compared to infants who are not exclusively breastfed. This finding confirms that exclusive breastfeeding plays an important role in supporting the nutritional status and growth of infants in the early stages of life. Further researchers are advised to include other variables such as maternal nutritional status, breastfeeding frequency, and intake of complementary foods to obtain a more comprehensive picture of the factors that influence infant growth.

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