

Incidence of Stunting in Children Under Five with a History of Normal Birth Weight and Exclusive Breastfeeding

¹Christine Handayani Tampubolon*, ²Lady Ezra Rinov Elizabeth, ³Louisa Ariantje Langi, ⁴Keswari Aji Patriawati

¹Department of Pediatric, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia*; email: christine.tampubolon@uki.ac.id

²Medical Student, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia; email: lady_elizabeth@gmail.com

³Department of Public Health, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia; email: louisa.langi@uki.ac.id

⁴ Department of Pediatric, Faculty of Medicine, Universitas Kristen Indonesia, Jakarta, Indonesia

*Correspondence

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Abstract

Introduction: Stunting is a chronic nutritional problem characterized by impaired linear growth in children. Birth weight and breastfeeding history are important factors during the first 1,000 days of life and may influence subsequent child growth. **Objective:** This study aimed to describe birth weight and breastfeeding history among stunted children at Kramat Jati Regional General Hospital. **Method:** This descriptive retrospective study used medical record data from children aged 0–59 months treated between July 2024 and November 2025. A total of 55 children who met the inclusion criteria were selected using total sampling. Data were analyzed using univariate analysis to determine frequency and percentage distributions. **Result and Discussion:** Most stunted children had normal birth weight, accounting for 41 children (74.5%), while 14 children (25.5%) had low birth weight. Exclusive breastfeeding was reported in 37 children (67.3%), whereas 18 children (32.7%) did not receive exclusive breastfeeding. These findings indicate that stunting may occur despite normal birth weight and exclusive breastfeeding, suggesting that postnatal nutrition, recurrent infections, caregiving practices, and access to health services may also contribute to growth impairment. **Conclusions:** Stunting is multifactorial and requires comprehensive nutritional and health interventions throughout early childhood.

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Introduction

Stunting remains a major child health and nutrition problem worldwide and is defined as height-for-age below minus two standard deviations from the WHO Child Growth Standards. In 2024, approximately 150.2 million children under five were affected by stunting, representing 23.2% of the global population in this age group (World Health Organization [WHO], 2025). Stunting may adversely affect physical growth, susceptibility to infection, cognitive development, and future productivity (Quamme & Iversen, 2022). In Indonesia, the prevalence of stunting among children under five decreased to 19.8% in 2024, but the condition remains an important public health concern (Ministry of Health of the Republic of Indonesia, 2025). Among the factors related to early child growth, conditions during the first 1,000 days of life are particularly important (Rusliani et al., 2022). Nutritional disturbances during this critical period may have persistent effects on subsequent growth and development (Hijrawati et al., 2021).

Birth weight is an important indicator of fetal growth and maternal nutritional conditions during pregnancy. Low birth weight, defined as less than 2,500 g, may reflect impaired intrauterine growth and limited nutritional reserves, which can increase vulnerability to postnatal growth failure. Evidence indicates that low birth weight is associated with an increased risk of childhood stunting (Vats et al., 2024). Previous studies have similarly identified low birth weight as an important factor related to impaired growth among children under five (Ramadhan et al., 2023). Breastfeeding history is another important early-life nutritional factor. Exclusive breastfeeding during the first six months provides essential nutrients and immunological protection that support infant growth and reduce susceptibility to infection (Notarbartolo et al., 2022; Yi & Kim, 2021). Evidence from Indonesia has also suggested a protective relationship between exclusive breastfeeding and stunting (Hadi et al., 2021). However, findings regarding birth weight and breastfeeding in relation to stunting may vary across populations and clinical settings. Previous studies generally report a greater risk of stunting among children with low birth weight and a potential protective role of exclusive breastfeeding (Hadi et al., 2021; Vats et al., 2024).

However, available studies do not specifically describe the distribution of birth weight and breastfeeding history among stunted children treated at Kramat Jati Regional General Hospital. This creates a local evidence gap regarding whether stunted children in this clinical population predominantly have low birth weight and non-exclusive breastfeeding histories or whether stunting is also frequently observed among children with normal birth weight and exclusive breastfeeding histories. Therefore, this study aimed to describe the birth weight profile and breastfeeding history of stunted children aged 0–59 months at Kramat Jati Regional General Hospital. Specifically, the study assessed the distribution of normal and low birth weight and exclusive and non-exclusive breastfeeding histories, while age and sex were described as supporting characteristics of the study population

Method

This study employed a descriptive retrospective design using secondary data obtained from the medical records of children treated at Kramat Jati Regional General Hospital between July 2024 and November 2025. The study population consisted of children aged 0–59 months, while the sample included children with a height-for-age Z-score below minus two standard deviations based on the World Health Organization

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Multicentre Growth Reference Study criteria. Total sampling was applied to include all eligible patients who met the inclusion criteria. The main variables assessed were birth weight, categorized as low birth weight below 2,500 grams or normal birth weight, and breastfeeding history, categorized as exclusive or non-exclusive breastfeeding. Data were processed through data cleaning, coding, entry, and tabulation using statistical software. Univariate analysis was then performed to describe the frequency and percentage distribution of each variable. No novel technique or analytical framework was introduced because the study was specifically designed to provide a descriptive profile of birth weight and breastfeeding history among stunted children.

Result and Discussion

1. Result

Age and Gender Profile of Stunted Children Under Five, This study is based on 55 samples.

Table 1		
Frequency Distribution of Research Samples		
Variable	n	%
Age		
0-11 month	11	20.0%
12-35 month	31	56.4%
36-59 month	13	23.6%
Gender		
Woman	33	60.0%
Man	22	40.0%

Based on the data, the sample age range was 0–59 months. The largest proportion consisted of 31 children (56.4%) aged 12–35 months, followed by 13 children (23.6%) aged 36–59 months. The 0–11-month age group had the smallest proportion, comprising 11 children (20.0%). The distribution by sex showed that the majority of the sample were female, comprising 33 children (60.0%), while 22 children (40.0%) were male.

Birth Weight Profile of Stunted Children Under Five

Table 2		
Birth Weight Distribution		
Variable	n	%
Birth Weight		
LBW (<2500 gr)	14	25.5%
Non LBW	41	74.5%
Total	55	100%

The majority of the sample, comprising 41 children (74.5%), had a history of normal birth weight, while approximately 14 children (28.2%) were born with low birth weight.

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Profile of Breastfeeding History Among Stunted Children Under Five

Table 3

Distribution of Breastfeeding History		
Variable	n	%
Breastfeeding History		
Non-Exclusive	18	32.7%
Breast Milk Exclusive	37	67.3%
Total	55	100%

It was recorded that 18 children (32.7%) received non-exclusive breastfeeding, whereas the number of children receiving exclusive breastfeeding reached 46 (67.3%).

2. Discussion

Age and Gender Profile of Stunted Children Under Five

Based on the frequency distribution, the largest proportion of stunted children was found in the 12–35-month age group, comprising 31 children (56.4%), followed by the 36–59-month group with 13 children (23.6%) and the 0–11-month group with 11 children (20.0%). These findings indicate that stunting in this study was most frequently observed after the first year of life. This distribution may reflect the increasing nutritional demands during growth, but it should not be interpreted as evidence that age independently determines stunting because this study was descriptive. Suri et al. (2025) noted that nutritional requirements change throughout growth and development. The predominance of children aged ≥ 12 months is also consistent with Suratri et al. (2023), who reported a high proportion of stunting among children aged 12–59 months, and Modjadji and Mashishi (2020), who observed greater vulnerability among children older than 12 months. In contrast, Kismul et al. (2017) reported a greater tendency toward stunting among younger children, indicating that age distributions may vary across populations.

Regarding sex, 33 stunted children (60.0%) were female and 22 (40.0%) were male. Thus, females represented a larger proportion of the stunted children in this study; however, because no comparison group of non-stunted children was included, this finding cannot be interpreted as indicating a greater risk among girls. Zhang et al. (2016) found no substantial difference in stunting according to sex, while Putri et al. (2025) similarly reported that stunting occurred in both boys and girls. In contrast, Utami et al. (2019) reported a higher risk among boys. These differences suggest that the sex distribution of stunted children may vary according to the characteristics of the population studied

Birth Weight Profile of Stunted Children Under Five

Most stunted children in this study had a history of normal birth weight. A total of 41 children (74.5%) were born weighing 2,500–4,000 g, whereas 14 children (25.5%) had low birth weight ($< 2,500$ g). Therefore, within this clinical population, stunting was more frequently observed among children with normal birth weight. This finding should be interpreted as a description of the study population rather than evidence that normal birth weight increases stunting risk, because the study did not compare stunted and non-stunted children. This result is consistent with Ode et al. (2022), who showed that children with normal birth weight may still develop stunting. However, it differs from evidence indicating that low birth weight is associated with a higher likelihood of stunting (Vats et

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al., 2024). The present findings therefore indicate that birth weight alone does not describe the entire growth history of stunted children. Ramadhan et al. (2023) also reported that infants with low birth weight may be particularly vulnerable to subsequent growth faltering. From a clinical perspective, the predominance of normal birth weight in this study indicates that growth impairment may develop after birth even when fetal growth appears adequate at delivery. However, postnatal nutritional intake, infection, and other determinants were not directly measured in this study and therefore cannot be confirmed as explanations for the observed findings. The importance of monitoring growth remains relevant because stunting has been associated with adverse cognitive, motor, and linguistic outcomes (Simanjuntak et al., 2024)

Breastfeeding History Profile of Stunted Children Under Five

Most stunted children had a history of exclusive breastfeeding. A total of 37 children (67.3%) received exclusive breastfeeding, whereas 18 children (32.7%) did not. Thus, stunting was observed more frequently among children with a history of exclusive breastfeeding in this study population. This result does not indicate that exclusive breastfeeding causes stunting or lacks benefit, because the study only described breastfeeding history among children who were already classified as stunted and did not include a non-stunted comparison group. The finding shows that a history of exclusive breastfeeding alone was not sufficient to distinguish the occurrence of stunting within this sample. Other postnatal factors may contribute to subsequent linear growth; however, complementary feeding, recurrent infection, and other nutritional determinants were not measured and should therefore not be assumed to explain the present results.

The present finding is consistent with Tello et al. (2022), who reported a high prevalence of breastfeeding among stunted children. However, it differs from Hadi et al. (2021), who found that exclusive breastfeeding had a protective association with stunting in an Indonesian population. The difference may reflect variations in study design, population characteristics, and other growth-related exposures. Overall, the present study shows that most stunted children were aged 12–35 months, female, had normal birth weight, and had a history of exclusive breastfeeding. Because this was a descriptive study, these characteristics should not be interpreted as causal factors or independent predictors of stunting. Rather, they describe the demographic and early-life profiles of stunted children treated at Kramat Jati Regional General Hospital and provide a basis for future analytical studies examining factors associated with stunting

Conclusion

This study found that stunting among children under five at Kramat Jati Regional General Hospital occurred across different age groups and in both sexes. Among the 55 stunted children included in the study, the largest proportion was aged 12–35 months, comprising 31 children (56.4%), followed by 13 children (23.6%) aged 36–59 months and 11 children (20.0%) aged 0–11 months. Female children accounted for 33 cases (60.0%), while male children accounted for 22 cases (40.0%). Regarding birth weight, most stunted children had a history of normal birth weight, with 41 children (74.5%), whereas 14 children (25.5%) had low birth weight. In terms of breastfeeding history, 37 children (67.3%) had received exclusive breastfeeding, while 18 children (32.7%) had not. These findings indicate that stunting in this population was more frequently observed among children with normal birth weight and a history of exclusive breastfeeding.

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Therefore, the occurrence of stunting cannot be explained solely by birth weight or breastfeeding history and should be understood as a multifactorial condition that may also involve nutritional intake, recurrent infections, caregiving practices, healthcare access, and environmental factors.

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