Proceedings of the International Conference on Nursing and Health Sciences, Volume 5 No 1, January - June 2024
e-ISSN 2774 – 5104, Global Health Science Group
http://jurnal.globalhealthsciencegroup.com/index.php/PICNHS

TRENDS IN SHORT BIRTH LENGTH AND STUNTING INCIDENCE IN BLORA, 2019-2023

Maniek indah Kurniatri[1]*, Vitri Widyaningsih[2], Ika Sumiyarsi Sukamto[3]
[1]Master Program of Nutritional Sciences, Graduate School, Universitas Sebelas Maret, Jl. Ir. Sutami No.36, Jebres, Surakarta, Central Java 57126, Indonesia
[2]Faculty of Medicine, Universitas Sebelas Maret, Jl. Ir. Sutami No.36, Jebres, Surakarta, Central Java 57126, Indonesia
[3]Department of Midwifery, Faculty of Medicine, Universitas Sebelas Maret, Jl. Ir. Sutami No.36, Jebres, Surakarta, Central Java 57126, Indonesia
*maniek_indah@student.uns.ac.id

ABSTRACT

Babies born with short birth lengths tend to face challenges in achieving optimal growth, leading to stunting issues during childhood and suboptimal adult height. Monitoring trends and prevalence of babies born with short birth lengths and stunting is essential to understand community nutrition problems and evaluate the success of nutrition interventions over time. Objective: This study aims to identify trends and prevalence of babies born with short birth length and stunting incidence. Methods: This descriptive study utilizes secondary data from the Blora District Health Office for 2019-2023. The data includes information on the prevalence of short birth length and stunting from 26 community health centers in the Blora District. Results: The prevalence of short birth length from 2019 to 2023 significantly decreased from 10.48% in 2019 to 2.15% in 2023. Over the past five years, there has been a reduction of 8.33%, or 1.66% per year. Meanwhile, the prevalence of stunting was 10.48% in 2019, increased to 14.96% in 2020, and then decreased to 2.15% by 2023. Conclusion: The prevalence of babies born with short birth length has decreased by 8.33% over the past five years. The peak prevalence of stunting in 2020 indicates that the nutrition interventions implemented by the Blora District Government have successfully reduced nutrition problems among newborns.

Keywords: babies born; short birth length; stunting

INTRODUCTION

Birth length is a key indicator for assessing the nutritional health of newborns. It reflects the linear growth of the baby during pregnancy and is a crucial factor in child development (Svefors et al., 2019). Short birth length is a significant issue due to its association with stunting (Noviana et al., 2022). A birth length of under 48 centimeters can increase the risk of stunting, impacting the child's physical growth and cognitive development (Habibah, 2018). According to the 2018 Riskesdas data, the prevalence of babies born with a short birth length (<48cm) in Indonesia reached 22.7%, an increase from 20.2% in 2013. The rising trend of babies born with short birth lengths indicates public health issues that need addressing, such as insufficient access to adequate nutrition or quality healthcare during pregnancy (Nasriyah and Ediyono, 2023). The nutritional status of pregnant women, both macro and micro, is a risk factor for low birth length. Disturbances in linear growth in children aged 0-3 years, morbidity, micronutrient deficiencies, and psychosocial parenting patterns affect linear growth and cognitive development in children aged 3 years (Pusparini et al., 2017).

Babies with short birth length are at risk of stunting, though this does not guarantee future stunting. Previous studies have identified short birth length as a determinant for growth delays in children aged 6-23 months. Children with short birth length are 3.08 times more likely to experience

stunting and developmental delays (OR=3.08; CI=95% 1.03-9.15) (Amalia et al., 2016). Another study indicates that babies with a birth length <48 cm have a 4.091 times higher risk of stunting compared to those with a birth length ≥48 cm (Ni'mah and Nadhiroh, 2015). Blora District in Central Java had a high stunting prevalence in 2018, reaching 32% (Riskesdas Jateng, 2018). This was a decrease from 55.06% in 2013, with 35,861 stunted children. Short birth length is not the only indicator of stunting, as it results from various factors. To reduce its incidence, the most crucial interventions must occur during the baby's First 1,000 Days of Life (HPK) (Sutarto et al., 2018).

Since being designated as a stunting locus in 2018, Blora District's government has committed to reducing stunting rates. Efforts include convergence, coordination, consolidation, and synergy across programs and sectors through specific and sensitive interventions (Blora District Government, 2019). Addressing short birth length started in 2018 with zinc syrup supplements for babies born short, but this initiative stopped in 2020 due to the pandemic and zinc shortages (Blora Health Office, 2023). With appropriate interventions, such as adequate nutrition, good healthcare, and healthy, nutritious feeding practices, short-born children can avoid stunting and achieve optimal growth and development. Analyzing the issues of short birth length and stunting in Blora District is essential to understanding their prevalence trends. This analysis also provides insights into the success of interventions implemented from 2019 to 2023. This study aims to identify trends and prevalence of babies born with short birth length and stunting incidence in the Blora District.

METHOD

This descriptive study aims to illustrate the trends in the birth of babies with short birth lengths from 2019 to 2023 in Blora District, Central Java Province. The study uses secondary data obtained from the Blora District Health Office for the years 2019-2023. The data includes information on short birth length and stunting from 26 community health centers in Blora District. According to the Ministry of Health of the Republic of Indonesia, short birth length is defined as babies born with a length of less than 48 cm. Stunting is defined as short or very short stature based on length/height for age that is less than -2 Standard Deviations (SD) on the WHO (World Health Organization) growth curve, caused by chronic malnutrition.

RESULTS AND DISCUSSION

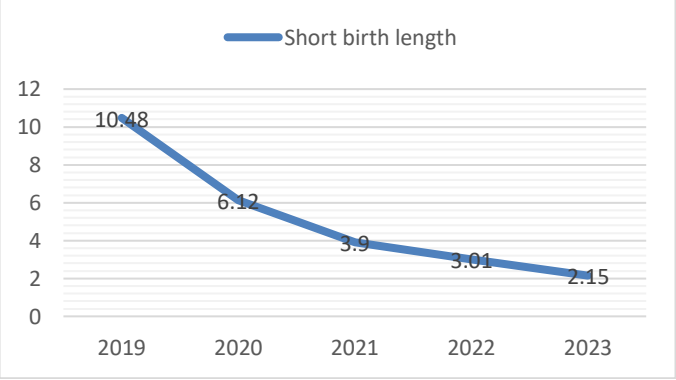

Figure 1. Trend in Prevalence of Babies with Short Birth Length in Blora District, 2019-2023

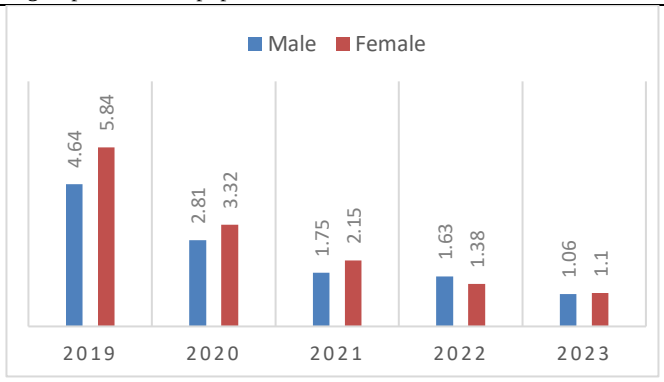

Figure 2. Trend in Prevalence of Babies with Short Birth Length by Gender in Blora District, 2019-2023

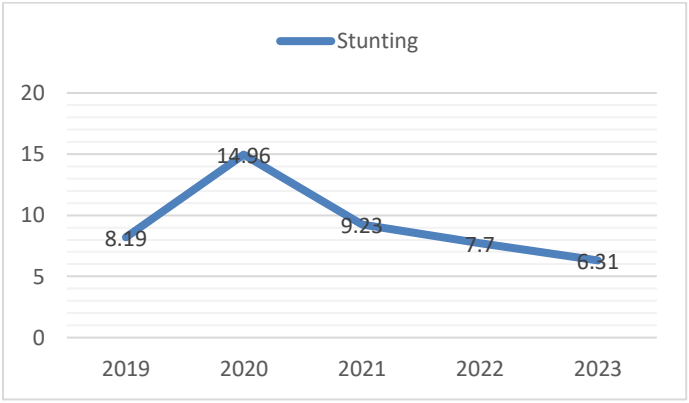

Figure 3. Trend in Stunting Prevalence in Blora District, 2019-2023

Overall, the trend in the prevalence of babies born with a short birth length (less than 47 centimeters) in Blora District shows a year-on-year decrease from 2019 to 2023 (Figure 1). Birth length is an important indicator for assessing the risk of stunting and subsequent development in adulthood (Elly *et al*., 2019). Measuring birth length plays a crucial role in determining the appropriate timing for implementing stunting prevention programs. Children born with short birth lengths may end up with shorter statures as adults (Judiono *et al*., 2023). Stunting within the first six months is already present at birth, with small-for-gestational-age (SGA) being a strong predictor. Moreover, there is a tendency for increased growth (-0.30 [-0.79 to 0.18]) in babies whose mothers received multiple micronutrient supplements before pregnancy compared to during pregnancy, although this was not statistically significant (Thahir *et al*., 2023). While research on factors influencing birth length is still limited, several studies have identified various contributing factors to low birth length. According to Elly *et al*. (2019), maternal height and gender characteristics are dominant factors associated with birth length, impacting linear fetal growth. Another study mentioned that low-birth-weight babies born to short mothers are twice as likely to experience stunting and have slower postnatal growth rates, particularly in the first six months of life, resulting in lower length-for-age Z-scores during infancy (Sinha *et al*., 2018). Factors such as small-for-gestational-age, prematurity, short birth length, maternal mid-upper arm circumference (MUAC) below 23.5 cm, and female infants are associated with stunting at six months of age (Thahir *et al*., 2023).

Providing iron supplements to prevent anemia in pregnant women is another factor influencing the incidence of short birth length. In developing countries, child stunting may be related to maternal anemia. This underscores the importance of preventing anemia in adolescent girls and women of reproductive age before and during pregnancy as part of a program to eliminate child stunting (Nadhiroh *et al*., 2023). Riskesdas data shows that the prevalence of anemia in pregnant women in Blora District was 48.9% in 2018, up from 37.1% in 2013. Research indicates that anemic pregnant women are 4.31 times more likely to give birth to babies with short birth length (stunted) than non-anemic pregnant women (Destarina, 2018). Another study found that anemic pregnant women are more likely to give birth to shorter babies (51.76 cm) compared to non-anemic mothers (55.54 cm) (Lelic *et al*., 2014). The trend of short birth length also shows that it is more prevalent in female infants (Figure 2). However, a different result was found by Sari and Sartika (2021), who reported that of 756 newborns surveyed in the 2018 Indonesian Basic Health Survey, 10.2% of 0-month-old children were stunted at birth (10.7% of boys and 9.5% girls). Similar to previous studies, maternal MUAC and height, as well as the baby's gender, were correlated with birth length, with maternal height being a dominant factor (Utami *et al*., 2018). Other research indicates that short maternal stature and low education levels increase the likelihood of stunting. Children from households with higher spending on unhealthy snacks are significant predictors of stunting (Widyaningsih *et al*., 2022).

The shifting trends in short birth length (Figure 1) and stunting (Figure 3) in Blora District show an overall improvement, despite a peak in stunting prevalence of 14.96% in 2020. This highlights the government's commitment to addressing the issue. One initiative in Blora District to reduce stunting is the "Gemati Lur" program (Gerakan Makan Sebutir Telur), which encourages toddlers in the Kedungtuban Subdistrict to eat one egg per day, complemented by cooking training to make egg dishes more appealing. This practice earned the "Desa Bebas Stunting Award" in 2023 (Kominfo Jawa Tengah, 2024). Other efforts by the Blora District government to reduce stunting include strengthening the Stunting Reduction Acceleration Team (TPPS), which develops and implements stunting reduction strategies in their respective areas; holding Stunting Consultations at the village and sub-district levels to identify stunted children and plan appropriate interventions; providing supplementary food (PMT); conducting stunting prevention campaigns through various media, including socialization, counseling, and education; and training Community Development Cadres (KPM) and Activity Implementation Teams (TPK) to improve knowledge and skills in helping communities prevent stunting and implement stunting interventions in villages (Blora District Government, 2021).

Understanding the factors influencing low birth length can help prevent stunting and growth delays in the future. Interventions aimed at reducing stunting in pregnant women should consider parental height, age, and parity, especially for first pregnancies and when parents are short or young. Strong programs supporting pregnant women and monitoring children's height from birth can help prevent intergenerational stunting (Sari and Sartika, 2021). The likelihood of stunting increases significantly in children with birth weights <2,500 g, those who have had diarrhea in the past two weeks, and those who do not receive complete basic immunizations at 9-11 months. In a model excluding low birth weight, stunting likelihood increases significantly for premature babies, short mothers, and children without complete immunization coverage at 9-11 months (Sartika *et al*., 2021).

Healthcare services play a crucial role in addressing stunting. Widyaningsih *et al*. (2022) revealed that nutrition services significantly correlate with stunting incidence among poor children and those in urban areas. Additionally, optimizing maternal care during prenatal periods, focusing on maternal health, and early interventions are essential for promoting healthy fetal growth and improving outcomes for at-risk infants (Thahir *et al*., 2023). Mothers with incomplete mother and newborn care visits are 30% more likely to experience intergenerational stunting cycles (OR (95% CI): 1.3 (1.00 to 1.63)) after adjusting for economic status. Continuous maternal and newborn healthcare visits can potentially break intergenerational stunting cycles, especially in populations where maternal stunting is common (Kumala Putri *et al*., 2024). Understanding the causes and impacts of low birth length can inform strategies to prevent or mitigate its effects. The government should focus on pre-and postnatal factors to prevent child stunting (Sartika *et al*., 2021). Measuring a baby's birth length is key to determining the right timing for stunting prevention programs during pregnancy, breastfeeding, and complementary feeding periods to reduce stunting risks and prevent future growth delays (Martorell and Zongrone, 2012).

CONCLUSION

The prevalence of short birth length from 2019 to 2023 has significantly decreased. Over the past five years, there has been a decrease of 8.33%, equivalent to 1.66% annually. The highest prevalence occurred in 2019 at 10.48%. Meanwhile, the highest stunting prevalence occurred in 2020 at 14.96%. Further examination of factors influencing the birth of babies with low height is expected to prevent stunting and growth delays in the future.

REFERENCES

Amalia N, Kencana S and Yunita SI (2016). Panjang Badan Lahir Pendek Sebagai Salah Satu Faktor Determinan Keterlambatan Tumbuh Kembang Anak Umur 6-23 Bulan Di Kelurahan Jaticempaka, Kecamatan Pondok Gede, Kota Bekasi. Jurnal Ekologi Kesehatan, pp.: 3–9.

Beal T, Tumilowicz A, Sutrisna A, Izwardy D and Neufeld LM (2018). A Review of Child Stunting Determinants in Indonesia. Maternal and Child Nutrition, 14(4), pp.: 1–10. doi: 10.1111/mcn.12617.

Destarina R (2018). Faktor Risiko Anemia Ibu Hamil Terhadap Panjang Badan Lahir Pendek Di Puskesmas Sentolo 1 Kulon Progo D.I.Yogyakarta. Gizi Indonesia, 41(1), pp.: 39. doi: 10.36457/gizindo.v41i1.250.

Elly N, Zainal E and Nilawati I (2019). Maternal Factors, Gender, and Relationship to the Length at Birth, 14(Icihc 2018), pp.: 328–330. doi: 10.2991/icihc-18.2019.72.

Habibah I (2018). Hubungan Status Ibu Hamil KEK Dengan Panjang Badan Lahir Pendek Pada Bayi Di Kabupaten Gunungkidul Tahun 2016. Available at: https://etd.repository.ugm.ac.id/penelitian/detail/161740.

Judiono J, Priawantiputri W, Indraswari N, Widawati M, Ipa M, Megawati G, Prasetyowati H and Marhaeni D (2023). Faktor Determinan Panjang Badan Bayi Lahir Pendek Sebagai Faktor Risiko Stunting Di Jawa Barat. Amerta Nutrition, 7(2), pp.: 240–247. doi: 10.20473/amnt.v7i2.2023.240-247.

Kominfo JawaTengah (2024). Blora Optimistis Prevalensi Stunting Turun Jadi 14 Persen. Available at: https://jatengprov.go.id/beritadaerah/blora-optimistis-prevalensi-stunting-turun-jadi-14-persen/.

Kumala Putri DS, Sari K, Utami NH, Djaiman SPH. Influence of maternal and neonatal continuum of care on the risk of intergenerational cycle of stunting: a cross-sectional study. BMJ Open. 2024 Apr 19;14(4):e081774. doi: 10.1136/bmjopen-2023-081774. PMID: 38643007; PMCID: PMC11033657.

Lelic M, Bogdanovic G, Ramic S and Brkicevic E (2014). Influence of Maternal Anemia during Pregnancy on Placenta and Newborns. Medicinski arhiv, 68(3), pp.: 184–187. doi: 10.5455/medarh.2014.68.184-187.

Martorell R and Zongrone A (2012). Intergenerational Influences on Child Growth and Undernutrition. Paediatric and perinatal epidemiology, 26 Suppl 1, pp.: 302–314. doi: 10.1111/j.1365-3016.2012.01298.x.

Nadhiroh SR, Micheala F, Tung SEH, Kustiawan TC. Association between maternal anemia and stunting in infants and children aged 0-60 months: A systematic literature review. Nutrition. 2023 Nov;115:112094. doi: 10.1016/j.nut.2023.112094. Epub 2023 Jun 3. PMID: 37572547.

Nasriyah N and Ediyono S (2023). Dampak Kurangnya Nutrisi Pada Ibu Hamil Terhadap Risiko Stunting Pada Bayi Yang Dilahirkan. Jurnal Ilmu Keperawatan dan Kebidanan, 14(1), pp.: 161–170.

Ni'mah K and Nadhiroh SR (2015). Faktor Yang Berhubungan Dengan Kejadian Stunting Pada Balita. Media Gizi Indonesia, 10(1), pp.: 13–19. doi: 10.20473/mgi.v10i1.13-19.

Noviana U, Haris M and Savira DY (2022). Analisis Faktor Riwayat Berat Badan Lahir, Panjang Badan Lahir, Asi Eksklusif, Dan Pola Nutrisi Pada Pada Kejadian Stunting. Jurnal Ilmiah Ilmu Keperawatan, pp.: 141–147.

Pemerintah Kabupaten Blora (2021). Inovasi Penurunan Stunting Di Kabupaten Blora Diapresiasi Kemenkes. Available at: https://infopublik.id/kategori/nusantara/534582/inovasi-penurunan-stunting-di-kabupaten-blora-diapresiasi-kemenkes.

Pusparini, Hardinsyah, Briawan D and Ernawati F (2017). Status Gizi Ibu Sebagai Faktor Risiko Panjang Bayi Lahir Rendah Serta Dampaknya Terhadap Pertumbuhan Linier Dan Perkembangan Kognitif Anak Usia Tiga Tahun. Available at: https://repository.ipb.ac.id/handle/123456789/88560.

Riskesdas Jateng (2018). Laporan Provinsi Jawa Tengah Riskesdas 2018. Kementerian Kesehatan RI.

Sari K and Sartika RAD (2021). The Effect of the Physical Factors of Parents and Children on Stunting at Birth among Newborns in Indonesia. Journal of Preventive Medicine and Public Health, 54(5), pp.: 309–316. doi: 10.3961/jpmph.21.120.

Sartika AN, Khoirunnisa M, Meiyetriani E, Ermayani E, Pramesthi IL, Nur Ananda AJ. Prenatal and postnatal determinants of stunting at age 0-11 months: A cross-sectional study in Indonesia. PLoS One. 2021 Jul 14;16(7):e0254662. doi: 10.1371/journal.pone.0254662. PMID: 34260622; PMCID: PMC8279365.

Sinha B, Taneja S, Chowdhury R, Mazumder S, Rongsen-Chandola T, Upadhyay RP, Martines J, Bhandari N, et al. (2018). Low-Birthweight Infants Born to Short-Stature Mothers Are at Additional Risk of Stunting and Poor Growth Velocity: Evidence from Secondary Data Analyses. Maternal and Child Nutrition, 14(1), pp.: 1–9. doi: 10.1111/mcn.12504.

Sutarto, Mayasari D and Indriyani R (2018). Stunting, Faktor Resiko Dan Pencegahannya. J Agromedicine, 5(1). doi: 10.1201/9781439810590-c34.

Svefors P, Sysoev O, Ekstrom E-C, Persson LA, Arifeen SE, Naved RT, Rahman A, Khan AI, et al. (2019). Relative Importance of Prenatal and Postnatal Determinants of Stunting: Data Mining Approaches to the MINIMat Cohort, Bangladesh. BMJ open, 9(8), pp.: e025154. doi: 10.1136/bmjopen-2018-025154.

Thahir AIA, Li M, Holmes A, Gordon A. Exploring Factors Associated with Stunting in 6-Month-Old Children: A Population-Based Cohort Study in Sulawesi, Indonesia. Nutrients. 2023 Aug 1;15(15):3420. doi: 10.3390/nu15153420. PMID: 37571357; PMCID: PMC10421344.

Utami NH, Rachmalina, R Irawati A, Sari K, Rosha BC, Amaliah N and Besral B (2018). Short Birth Length, Low Birth Weight and Maternal Short Stature Are Dominant Risks of Stunting among Children Aged 0-23 Months: Evidence from Bogor Longitudinal Study on Child Growth and Development, Indonesia. Malaysian Journal of Nutrition, 24(1), pp.: 11–23

Widyaningsih V, Mulyaningsih T, Rahmawati FN, Adhitya D. Determinants of socioeconomic and rural-urban disparities in stunting: evidence from Indonesia. Rural Remote Health. 2022 Mar;22(1):7082. doi: 10.22605/RRH7082. Epub 2022 Mar 21. PMID: 35306826.