Analysis of Factors Related to Stunting Incidence: Cross Sectional Study

Rifa Yanti[1*], Riski Novera Yenita[2], Dilgu Meri[3]

[1-2] Master's Program In Public Health Al Insyirah Insttitut of Health and Technology Pekanbaru Riau Indonesia
[3] Nursing Study Program Al Insyirah Insttitut of Health and Technology Pekanbaru Riau Indonesia

*Corresponding Author: rifa.yanti@ikta.ac.id

Abstract. Stunting which is characterised by the growth of children and is hampered due to insufficient nutritional intake during pregnancy and the first 1000 days of life, usually begins to be seen significantly after the child reaches the age of 24 months. Socioeconomic factors such as family education and income affect children's nutrition through access to food and purchasing power. Malnutrition for the mother can cause infants to be born with low body weight and disrupt foetal growth, increasing the risk of stunting in children. Breastfeeding patterns, a lack of food intake, and infectious diseases also contribute to the risk of stunting. This study aims to identify the factors that influence stunting in toddlers aged 24-59 months in the working area of Apit Sungai Puskesmas, Siak Regency. Analytical observational studies with a latitude design are carried out from October 2023 to January 2024. The study population includes all toddlers aged 24-59 months, with a total sample of 46 selected through total sampling. Data was collected through the distribution of questionnaires and analysed using the Chi-Square test. Most toddlers have a normal birth weight (71.7%), while most do not get exclusive breastfeeding (67.4%). In addition, most mothers have low knowledge about stunting (65.2%), and most families have low income (78.3%). Furthermore, most toddlers experience stunting (30.2%). This study identifies the relationship between birth weight (p = 0.000), exclusive breastfeeding (p = 0.004), maternal knowledge level (p = 0.004), and family income level (p = 0.004) and stunting in the working area of Sungai Apit Puskesmas, Siak Regency.

Key words: birth weight, breastmilk, knowledge, income, stunting

INTRODUCTION

Stunting remains a persistent nutritional problem globally, including in Indonesia. The prevalence of stunting among toddlers globally in 2020 was estimated at 149 million, or 22% (WHO, 2020). The 2021 Indonesian Nutritional Status Study (SSGI) reported that the prevalence of stunting in Indonesia reached 24.4%, remaining the most common nutritional problem among toddlers and children aged 5 years and under (Ministry of Health, 2021). The prevalence of stunting among toddlers in West Java reached 24.5% in December 2021, with Bandung Regency the third-highest prevalence rate at 31.3% (Ministry of Health, 2021).

Based on the results of the 2022 Indonesian Nutritional Status Survey (SSGI), President Jokowi's national target for 2024 is 14 percent. The prevalence of stunting in Riau Province is 17 percent, an improvement from 22.3 percent in 2021. It is expected to reach 14 percent by 2024. The prevalence of stunting in Riau Province was 17.75% (2016), 18.5% (2017), and 17.1% (2018), while the prevalence of severely stunted children was 7.32% (2016), 11.2% (2017), and 10.3% (2018).

Based on the results of the 2022 Indonesian Nutritional Status Survey (SGGI), the prevalence rate, or the total number of cases of stunting within a specific time period, in Siak Regency increased by 3 percent. This figure makes Siak Regency the second-lowest in Riau Province. Compared to 2021, the stunting prevalence in Siak remained at 19 percent. However, it rose to 22 percent in 2022 and is expected to reach 15% in 2023. This figure is still far from the national target of 14 percent set by President Jokowi for 2024. Specifically, at the Sungai Apit Community Health Center (Puskesmas), there are 46 stunted toddlers aged 24–59 months.

Several factors influence stunting in children, including direct and indirect factors. Among the indirect factors are maternal education level and family income. According to Soekirman and UNICEF, low nutritional status can be directly influenced by low nutrient intake. Low nutritional intake can be caused by insufficient food availability at the household level. This food availability will be met if the community has sufficient purchasing power. Socioeconomic factors also play a role in determining a family's purchasing power. Families with higher incomes have easier access to education and healthcare, which can improve their children's nutritional status (Rahma, 2017).

Maternal factors also include poor maternal nutritional status during pregnancy, short stature, and poor parenting practices, particularly in child-feeding behaviors and practices. Mothers who were malnourished during adolescence, even during pregnancy, can cause toddlers to be born with Low Birth Weight (LBW), and lactation with Exclusive Breastfeeding will significantly affect body growth. Maternal nutritional factors before and during pregnancy are indirect causes that contribute to fetal growth and development. Pregnant women with malnutrition will cause the fetus to be malnourished and LBW and experience growth and development disorders. Children who experience growth retardation are caused by a lack of adequate food intake and the presence of recurrent infectious diseases and exclusive breastfeeding. This situation makes it even more difficult to overcome growth disorders that ultimately increase the risk of stunting. The purpose of this study was to analyze factors related to the incidence of stunting in toddlers aged 24–59 months in the working area of the Sungai Apit Community Health Center, Siak Regency.

METHODS

This research is an observational analytical study with a cross-sectional design. The research explains the relationship between variables through the submission of hypotheses. This design is characterized by the absence of intervention or treatment given to the sample (Swarjana, 2016). The cross-sectional approach is used because in this study design, all variables are measured and observed at the same time (one point in time), making it easier for researchers to conduct research. This approach is used to see the relationship between one variable and another (Ahmad, 2018). The population in this study was 46 toddlers aged 24–59 months. The sample in this study were respondents taken based on inclusion criteria from the population who had signed informed consent. In this study, the sampling was determined by a total sampling of 46 toddlers aged 24–59 months. The data collection technique used a questionnaire. Data analysis used the Chi-square statistical test to test the significance between variables. The level of significance of the test results was $p < 0.05$.

RESULTS AND DISCUSSION

Univariate analysis

Table 1. Frequency distribution of birth weight (BBL) of toddlers in the Sungai Apit Community Health Center, Siak Regency (n=46)

Variable	Amount	Persentage (%)
Low birth weight		
BBLR	13	28,3
Normal	33	71,7
Amount	46	100
Exclusive Breastfeeding		
Not Exclusive Breastfeeding	31	67,4
Exclusive Breastfeeding	15	32,6
Amount	46	100
Mother's Knowledge		
Not enough	30	65,2
Enough	16	34,8
Total	46	100
Family Income		
Low	36	78,3
Hig	10	21,7
Amount	46	100
Stunting incidents		
Stunting	14	30,4
No stunting	32	69,6
Total	46	100

Based on the table above, it shows that more than half (71.7%) of toddlers have normal birth weight (71.7%), more than half of toddlers do not receive exclusive breastfeeding (67.4%), more than half (65.2%) of mothers' knowledge about stunting is low, almost all (78.3%) have low family income, less than half of toddlers experience stunting (30.4%).

Bivariate Analysis

Table 2. Relationship between low birth weight, exclusive breastfeeding, maternal knowledge and family income with the incidence of stunting (n=46)

Variable	Stunting incidents				Amount		P_{value}
	Stunting		No Stunting				
	n	%	n	%	n	%	
Low birth weight							
Normal	9	69,2	4	30,8	13	100	0,000
BBLR	4	12,1	29	87,9	33	100	
Amount	**13**	**28**	**33**	**72**	**46**	**100**	
Exclusive Breastfeeding							
Not Exclusive Breastfeeding	14	45	17	55	31	100	0,004
Exclusive Breastfeeding	2	13	13	87	15	100	
Amount	**16**	**35**	**30**	**65**	**46**	**100**	
Mother's Knowledge							
Not enough	12	40	18	60	30	100	0,004
Enough	2	13	14	87	16	100	
Amount	**14**	**30**	**32**	**70**	**46**	**100**	
Family Income							
Low	20	55,6	16	44,4	36	100	0,004
Hig	3	30	7	70	10	100	
Amount	**23**	**50**	**23**	**50**	**46**	**100**	

Based on the table above, it can be seen that out of 13 low birth weight toddlers, there are 9 stunted toddlers (69.2%) and 33 normal birth weight toddlers, there are 4 stunted toddlers (12.1%). The results of the chi-square test obtained a P value of 0.000 (<0.05) which states that there is a significant relationship between low birth weight and the incidence of stunting. The results of the statistical test on exclusive breastfeeding found that out of 31 toddlers who were not exclusively breastfed, there were 14 stunted toddlers (17%), and 15 toddlers who were exclusively breastfed, there were 2 stunted toddlers (13%). The results of the chi-square test obtained a value with a P value of 0.004 (<0.05) there is a significant relationship between exclusive breastfeeding and the incidence of stunting. The results of the statistical test on maternal knowledge showed that out of 30 toddlers with low maternal knowledge, there were 12 stunted toddlers (40%), and 16 toddlers with sufficient maternal knowledge, there were 2 stunted toddlers (13%). The chi-square test obtained a value with a P value of 0.004 (<0.05) indicating a significant relationship between maternal knowledge and the incidence of stunting. The family income analysis showed that out of 36 toddlers with low family income, there were 20 stunted toddlers (55.6%), and 10 toddlers with high family income, there were 3 stunted toddlers (30%). The chi-square test obtained a value with a P value of 0.004 (<0.05).

The results of this study align with Khasanah's (2022) study, which found a p-value of 0.043 (p<0.05) based on statistical tests. This indicates a significant relationship between low birth weight (LBW) and stunting among toddlers in Surakarta Village, Suranenggala District, Cirebon Regency. These results align with those of Maineny et al. (2022), which found a p-value of 0.0001 (p<0.05), indicating a significant relationship between low birth weight and stunting among toddlers at the Nosarara Community Health Center in Pengawu Village. The study also revealed that neonatal morbidity, long-term growth and development, and fetal death are closely related to birth weight. Low birth weight has been identified as a risk factor for stunting in Indonesia (Ministry of Health, 2020).

Breast milk, which meets the nutritional needs of children, supports a child's growth and development. Babies who do not receive sufficient breast milk have poor nutritional intake and can lead to malnutrition, one of which can lead to stunting. One of the benefits of exclusive breastfeeding is supporting infant growth because calcium in breast milk is more efficiently absorbed than breast milk substitutes or formula milk (Prasetyono, 2019). The results of this study are in line with research conducted by Nadhiroh which states that there is a relationship between exclusive breastfeeding and the incidence of stunting in toddlers, namely children who do not exclusively breastfeed have a higher chance of stunting compared to children who are exclusively breastfed. Insufficient breast milk consumption will cause an imbalance in the metabolic processes in the body. In infants, if this happens

continuously, it will cause growth and development disorders in children (Ni'mah, 2015). The results of this study also align with previous research conducted by SJMJ, which found a significant relationship between exclusive breastfeeding and stunting in toddlers, with a P-value of 0.000 (0.000 < 0.05). This suggests a chronic nutritional problem caused by insufficient nutritional intake over a prolonged period due to inadequate feeding. One cause of stunting in toddlers is the failure to provide exclusive breastfeeding for six months, as breast milk is essential for infant growth to meet nutritional needs.

Mothers' knowledge of the concept of stunting influences their actions in preventing stunting. Several studies have shown that mothers of toddlers still have inadequate knowledge of stunting prevention efforts (Hendrawati & Witdiawati, 2020). This lack of knowledge can contribute to an increase in stunting due to a lack of knowledge regarding prevention and early detection efforts (Rahmawati et al., 2019). Furthermore, inadequate maternal knowledge can impact a child's overall nutritional status. Research shows that toddlers are at higher risk of malnutrition if their mothers have poor knowledge about stunting, compared to toddlers whose mothers have good knowledge about stunting. This is due to the important role of mothers in ensuring that children's nutritional needs are met (Nurmaliza & Herlina, 2019).

CONCLUSION

Factors that can influence the incidence of stunting in the working area of Sungai Apit Health Center, Siak Regency include LBW as many as 13 toddlers (28.3%), normal weight 33 toddlers (71.7%), Exclusive breastfeeding as many as 15 toddlers (32.6%), not exclusively breastfeeding 31 toddlers (67.4%), lack of maternal knowledge as many as 30 (65.2%) and sufficient maternal knowledge 16 people (34.8%), and low family income as many as 36 (78.3%) and high family income 10 (21.7%). The results showed that of the 46 toddlers who had LBW as much as 69.2% and normal BBL as much as 12.1%, with P = 0.0000 (<0.05). Of the 46 toddlers who were not exclusively breastfeeding as much as 45% and who received exclusive breastfeeding as much as 13%, with P = 0.004 (<0.05). Of the 46 mothers of toddlers, 40% had insufficient knowledge and 30% had sufficient knowledge, with P = 0.004 (<0.05). Of the 46 families of toddlers, 55.6% had low income and 30% had high income, with P = 0.004 (<0.05).

REFERENCES

Ahmad Tanzeh & Suyitno (2018). Metode Penelitian Kualitatif. Surabaya: Akademia Pustaka

Ernawati, A. (2022). Media promosi kesehatan untuk meningkatkan pengetahuan ibu tentang stunting. Jurnal Litbang, 18(2), 139–152.

Hendrawati, S., KH, F. H., & Witdiawati, W. (2020). Knowledge of mother toddlers about stunting.Riset Informasi Kesehatan,9(2), 115-125.

Kementerian Kesehatan RI. (2018). *Riset Kesehatan Dasar (RISKESDAS) RI* Tahun 2018. Jakarta.

Kemenkes RI. (2021). Buku saku hasil studi status gizi Indonesia (SSGI) tingkat nasional, provinsi, dan kabupaten/ kota tahun 2021. Ayyida Aini Rahmah: Hubungan Pendidikan Ibu Dan Keterpaparan Informasi Stunting Dengan Pengetahuan Ibu Tentang Stunting Journal of Nursing Care - Volume 6 Issue 1 February 2023 9 Jakarta: Kementerian Kesehatan Republik Indonesia

Khasanah, U. (2022). Hubungan Antara Berat Badan Lahir Rendah dan Air Susu Ibu Eksklusif Dengan Kejadian Stunting. Tunas Medika Jurnal Kedokteran dan Kesehatan,8(1), pp. 4-11.

Maineny, A., Rifkawati, Silfia, N. N.,danUsman, H. (2022).Berat Badan Lahir Rendah dengan Kejadian Stunting Pada Balita Umur 12-59 Bulan.

Ni'mah, K., & Nadhiroh SR. (2015). Faktor yang berhubungan dengan kejadian stunting pada balita. Media gizi Indonesia. Vol. 10, N:13–19

Nurmaliza, N., & Herlina, S. (2019). Hubungan Pengetahuan dan Pendidikan Ibu terhadap Status Gizi Balita. Jurnal Kesmas Asclepius, 1(2), 106–115.

Prasetyono DS. (2019). Buku Pintar ASI Eksklusif Pengenalan, Praktik, Dan Kemanfaatan-Kemanfaatannya.

Rahma, A. C., & Nadhiroh, S. R. (2017). Perbedaan sosial ekonomi dan pengetahuan gizi ibu Balita gizi kurang dan gizi normal. Media Gizi Indonesia, 11(1), 55-60.

Rahmawati, A., Nurmawati, T., &Sari, L. P. (2019). Faktor yang berhubungan dengan pengetahuan

orang tua tentang stunting pada balita.Jurnal Ners Dan Kebidanan (Journal of Ners and Midwifery),6(3), 389-395.

Salsabila, N., Sopyan, N. L., Tias, P. S. (2022). Pengetahuan dan sikap ibu tentang stunting yang menyebabkan gizi kurang pada anak. JMM, 6(4), 2867–2873. http:// journal.ummat.ac.id/index.php/jmm/article/view/9152%0Ahttp://journal.ummatac.id/ index.php/jmm/article/viewFile/9152/pdf

Swarjana,I.K. (2018). Metodologi Penelitian Kesehatan. Ke-2. Edited by M. Bendatu. Yogyakarta: CV. Andi Offset

WHO. (2020). Stunted growth and development. Geneva: WHO. https://www. who.int/nutrition/childhood_stunting_ framework_leaflet_en.pdf

.