Journal for Quality in Women's Health
DOI : https://doi.org/10.30994/jqwh.v8i1.273 https://jqwh.org/
ISSN: 2615-6660 (print); 2615-6644 (online) Vol.8 No 1. March 2025. Page.35-41

The Relationship Between Risk Factors And Stunting Incidence In Children Aged 24-59 Months In The Working Area Of Semen Community Health Center, Kediri Regency, 2023

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ABSTRACT

Stunting is a consequence of malnutrition during pregnancy and early childhood, leading to growth failure and cognitive development impairment. This condition is influenced by various risk factors, such as maternal nutritional status, breastfeeding patterns, low birth weight (LBW), birth length, and neonatal disease history. This study aims to analyze the relationship between risk factors and the incidence of stunting in children aged 24-59 months in the working area of Puskesmas Semen, Kediri Regency, in 2023. This study employs a correlational design, with independent variables consisting of risk factors and the dependent variable being the incidence of stunting in children aged 24-59 months, with data collection conducted in the working area of Puskesmas Semen, Kediri Regency, in August 2023. The sample was selected using a simple random sampling technique, while data analysis was performed using the chi-square test for ordinal-scale independent variables and logistic regression for factor analysis. The analysis results indicate that significant factors associated with stunting include breastfeeding history, low birth weight (LBW), and birth length, with LBW being the strongest risk factor (RR = 2.19). Therefore, stunting prevention programs should focus on exclusive breastfeeding, LBW prevention, and maternal nutritional interventions to improve birth length. Stunting prevention requires a holistic approach from pre-pregnancy to early childhood, emphasizing LBW prevention, exclusive breastfeeding, and optimal birth length. The success of this program requires collaboration between healthcare professionals, the government, and the community to ensure sustainable and effective interventions.

Keywords: risk factors, incidence, stunting, children aged 24-59 months

1. INTRODUCTION

Stunting is the result of malnutrition during pregnancy and early childhood, which has an impact on growth failure and cognitive development obstacles (Gebregyorgis et al., 2016; WHO, 2018). Globally, around 151 million children under five are stunted, with the prevalence under the age of 5 reaching 149.2 million in 2020. In Indonesia, the stunting rate in 2021 was 24.4% or around 5.33 million children under five, while in 2022 it reached 21.6% (Minister of Health of the Republic of Indonesia, 2022; UNICEF et al., 2021).

Stunting occurs due to a lack of nutritional intake which causes children to experience suboptimal growth and are at risk of recurrent diseases, both infectious and non-infectious. Contributing risk factors include maternal conditions (gestational age, nutritional status, and breastfeeding patterns), as well as child factors such as low birth weight, history of neonatal diseases, and lack of immunization (Nirmalasari, 2020). In addition, the length of the birth body also plays a role in increasing the risk of stunting (Meilyasari & Isnawati, 2014).
The impact of stunting not only affects physical growth, but also cognitive, motor, and verbal development, which can have an impact on educational attainment, productivity, and even increase the risk of obesity and metabolic disorders in the future (Black et al., 2017; Rahayu et al., 2018; Utami et al., 2019). Therefore, handling stunting requires special attention to ensure that children can grow and develop optimally (Research and Development Agency of the Ministry of Health of the Republic of Indonesia, 2021).

The purpose of this study is to determine the relationship between risk factors and the incidence of stunting in children aged 24-59 months in the Working Area of the Semen Health Center, Kediri Regency in 2023.

2. METHODS

The purpose of this study is to determine the relationship between risk factors and the incidence of stunting in children aged 24-59 months in the Working Area of the Semen Health Center, Kediri Regency in 2023.

This study uses a correlational design with independent variables in the form of risk factors and bound variables in the form of stunting incidence in children aged 24-59 months. The instrument used was a data collection sheet, with the location of the research in the Working Area of the Semen Health Center, Kediri Regency, in August 2023.

The study population includes all children aged 24-59 months in the region, with a sampling technique using simple random sampling. Data analysis was carried out using the chi-square test for ordinal-scale independent variables and nominal-scale dependent variables and logistic regression was used for factor analysis.

3. RESULTS

Table 1 presents the distribution of respondents based on the research variables.

Table 1. Distribution of respondents

Variabel	n=208	%
Incidence Stunting		
Stunting	69	33,2
Not Stunting	137	66,8
Maternal Education		
Low	30	14,4
Middle	148	71,2
High	30	14,4
History of Breastfeeding		
Not Exclusive Breastfeed	73	35,1
Exclusive Breastfeed	135	64,3
Birth Weight		
Low birth weight	57	27,4
Normal	151	72,6
Maternal Height		
Short (≤ 150 cm)	69	33,2
Tall (> 150 cm)	139	66,8
Birth Length		
Pendek (≤ 50 cm)	73	35,1
Tinggi (> 50 cm)	135	64,9

The results of Table 1 show the distribution of respondent characteristics in this study (n=208). The prevalence of stunting in children reached 33.2%, while 66.8% did not experience stunting. The majority of mothers have a secondary education level (71.2%), while primary and higher education is 14.4% each. A total of 35.1% of children do not receive exclusive breastfeeding, while 64.3% receive exclusive breastfeeding. Babies with low birth weight (BBLR) were recorded at 27.4%, while those born with normal weight were 72.6%. Maternal height also had an effect, with 33.2% of mothers short (≤150 cm) and 66.8% tall (>150 cm). In addition, the length of the child's birth body showed that 35.1% were born with a length of ≤50 cm and 64.9% were more than 50 cm.

The results of the chi square test analysis to see the relationship between risk factor variables, including: maternal education, breastfeeding history, birth weight, maternal height, and birth body length to stunting incidence are presented in the following Table 2.

Table 2. The Relationship Between Risk Factors and Stunting Incidence in Children Aged 24–59 Months

Variabel	Incidence stunting				RR	CI 95%	p
	Stunting		Not Stunting				
	n	%	n	%			
Maternal Education							
Low	3	4,3	27	19,4	0,4	0,13-1,02	0,015
Middle	55	79,7	93	66,9	1,0	0,87-1,15	0,959
High	11	16,0	19	13,7			
History of Breastfeeding							
Not Exclusive Breastfeed	38	55,1	35	25,2	2,2	1,53-3,12	0,000
Exclusive Breastfeed	31	44,9	104	74,8			
Birth Weight							
Low birth weight	39	56,5	18	12,9	4,4	2,70-7,04	0,000
Normal	30	43,5	121	87,1			
Maternal Height							
Short (≤ 150 cm)	28	40,6	41	29,5	1,4	0,94-2,02	0,111
Tall (> 150 cm)	41	59,4	98	70,5			
Birth Length							
Short (≤ 50 cm)	39	56,5	34	24,5	2,3	1,61-3,30	0,000
Tall (> 50 cm)	30	43,5	105	75,5			

The results of the analysis showed that several factors had a significant relationship with the incidence of stunting in children aged 24-59 months. The maternal education variable showed that children with mothers with low education categories had a lower risk of stunting than mothers with secondary education (RR=0.4; CI 95%: 0.13-1.02; p=0.015). However, these results need to be interpreted with caution because the CI range is close to 1, so the effect may not be very statistically strong.

Children who do not receive exclusive breastfeeding have a 2.2 times higher risk of stunting than children who receive exclusive breastfeeding (RR=2.2; CI 95%: 1.53-3.12; p=0.000). This finding is statistically significant (p<0.05), indicating that exclusive breastfeeding plays an important role in stunting prevention.

Infants with BBLR have a 4.4 times higher risk of stunting than infants with

normal birth weight (RR=4.4; CI 95%: 2.70-7.04; p=0.000). This result is statistically significant and shows that birth weight is a strong risk factor for stunting.

Mothers with a height of ≤150 cm had a 1.4 times higher risk of giving birth to stunted children than taller mothers, but this result was not statistically significant (RR=1.4; CI 95%: 0.94-2.02; p=0.111). This means that maternal height may have contributed to stunting but was not the main factor in this study.

Babies born ≤50 cm have a 2.3 times higher risk of stunting than babies with a birth length of >50 cm (RR=2.3; CI 95%: 1.61-3.30; p=0.000). These results are statistically significant, showing that birth length is an important risk factor for stunting.

Factors that have a significant relationship with the incidence of stunting are history of breastfeeding, birth weight, and birth body length, with BBLR being the strongest risk factor. Meanwhile, maternal height was not significantly related to stunting in this study. Maternal education shows significant results but needs further interpretation.

In this study, logistic regression analysis was also carried out to see which risk factors that most affect the incidence of stunting presented in Table 3 below>

Tabel 3. Analysis Regression logistic

Stunting	RR	CI 95%	p
Maternal Education			
Low	1,27	0,97-1,67	0,082
Middle	1,26	0,97-1,66	0,087
High			
History of Breastfeeding			
Not Exclusive Breastfeed	1,25	1,02-1,54	0,027
Exclusive Breastfeed			
Birth Weight			
Low birth weight	2,19	1,52-3,17	0,000
Normal			
Maternal Height			
Short (≤ 150 cm)	0,94	0,88-1,00	0,051
Tall (> 150 cm)			
Birth Length			
Short (≤ 50 cm)	1,49	1,19-1,87	0,000
Tall (> 50 cm)			

The results of the analysis of Table 3 show that the factors that are significantly related to the incidence of stunting are the history of breastfeeding, birth weight (BBLR), and birth body length. BBLR had the highest risk (RR = 2.19), making it the strongest risk factor in the study.

Maternal education and maternal height did not show a significant relationship with the incidence of stunting in this regression model. Implications: Stunting prevention programs need to focus on exclusive breastfeeding, prevention of BBLR, and nutritional interventions for pregnant women to increase the length of the baby's birth body.

4. DISCUSSION

The first factor related to the incidence of stunting is that the history of breastfeeding is also proven to be closely related to the incidence of stunting. Research at the Mekarsari Health Center, Banyuasin Regency showed that there was a meaningful relationship between exclusive breastfeeding and the incidence of stunting in toddlers aged 24-59 months (Rumingsih et al., 2022). Exclusive breast milk has very important nutritional content to support the growth and development of children, as well as provide protection against infectious diseases that can affect the nutritional status of children. Exclusive breastfeeding can protect low-income children from stunting (Hadi et al., 2021). Breast milk nutrition at each stage of lactation (colostrum, transitional milk, and mature milk) reduces the factors that cause stunting, namely infant morbidity and lack of nutritional intake in infants (Safaah et al., 2022). Therefore, exclusive breastfeeding needs to be encouraged to prevent stunting, and this shows the importance of education about

breastfeeding from pregnancy to postpartum for mothers.

Birth weight factors also showed a significant relationship with the incidence of stunting. Children with low birth weight (BBLR) have a greater risk of stunting. Children with a birth weight of less than < 2,500 grams have a significantly higher risk of stunting by 5.96 times compared to children with a birth weight of ≥ 2,500 grams (Lukman et al., 2021). Low birth weight can be caused by various factors, such as malnutrition during pregnancy, infections, or other health problems in pregnant women (Damayanti et al., 2022). Proper treatment of health problems during pregnancy, including monitoring the mother's weight and good antenatal care, is essential to prevent the occurrence of BBLR and stunting in children.

In addition, birth length has also been proven to be an important risk factor for stunting. This result is in accordance with research at the Purwosari Health Center that there is a meaningful relationship between birth length and stunting incidence (Putri et al., 2024). Children born with a body length less than or equal to 50 cm are more at risk of stunting. Birth length reflects the nutritional status of the mother during pregnancy and can be an important indicator for the risk of stunted growth in the child. Monitoring the length of the baby's body since birth and providing adequate nutrition during the early growth period is very important to support child growth and development.

Overall, the most influential factor in this study was that birth weight showed a significant relationship with the incidence of stunting in children aged 24-59 months. For this reason, greater attention to these factors is very important in the implications of stunting prevention programs, it is necessary to focus on exclusive breastfeeding, prevention of BBLR, and nutritional interventions for pregnant women to increase the length of the baby's birth body.

Overall, the most influential factor in this study was that birth weight showed a significant relationship with the incidence of stunting in children aged 24-59 months. For this reason, greater attention to these factors is very important in the implications of stunting prevention programs, it is necessary to focus on exclusive breastfeeding, prevention of BBLR, and nutritional interventions for pregnant women to increase the length of the baby's birth body.

Nutritional interventions for pregnant women, including supplementation of iron, folic acid, protein, and additional energy, to ensure optimal fetal growth. Educate pregnant women about healthy diets and lifestyles that support fetal growth.

Improving the Coverage and Quality of Exclusive Breastfeeding. Socialization and education about the benefits of exclusive breastfeeding for the first six months as a protective factor against stunting. Strengthening support for breastfeeding mothers, both through health workers, families, and the work environment, to ensure the success of exclusive breastfeeding. Increased access to lactation consultations and support for mothers who have difficulty breastfeeding.

Increasing Birth Body Length through improving maternal nutrition and health. Providing nutrition programs for mothers-to-be, especially for adolescent girls, to prevent malnutrition that has an impact on fetal growth in the future. Monitoring and intervention of pregnant women at high risk, such as mothers with chronic energy deficiency (KEK) or anemia. Promotion of the consumption of animal protein and micronutrients such as iron and calcium to support optimal fetal development.

5. CONCLUSION

Stunting prevention requires a holistic approach from pre-pregnancy to early childhood. BBLR as the main risk factor must be prevented through optimizing the health of pregnant women, while exclusive

breastfeeding and optimal birth length are the focus in reducing stunting rates. Collaboration between health workers, the government, and the community is urgently needed to ensure the sustainability of effective stunting prevention programs.

6. ACKNOWLEDGMENTS

Acknowledgments to several parties involved in the preparation of this scientific article.

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