



Factors Influencing the Incidence of Stunting in Toddlers in the Working Area of the Namorambe Health Center, Deli Serdang Regency

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ABSTRACT

Stunting is a chronic nutritional problem that affects children's physical growth and cognitive development. Deli Serdang Regency is one of the regencies with the highest prevalence, namely 33.8% in 2023. This study aims to analyze the factors that influence the incidence of stunting in toddlers aged 1–5 years in the Namorambe Health Center working area, Deli Serdang. This study used a cross-sectional design, with a sample of 91 respondents randomly selected from a total population of 1,005 toddlers. Data were collected through questionnaires and analyzed using the chi-square test. The results showed that there was a significant relationship between parenting patterns ($p = 0.000$), maternal knowledge ($p = 0.000$), and infectious diseases ($p = 0.013$) with the incidence of stunting. However, there was no significant relationship between family income and the incidence of stunting. The recommendation is that comprehensive interventions are needed, including nutrition education and improving basic health services, to reduce the incidence of stunting.

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INTRODUCTION

Efforts to address and prevent stunting are prioritized on the global public health agenda. (Akbar, Kartika and Khairunnisa, 2023) About 148.1 million, or 22.3 % of children under the age of five worldwide, experienced stunting in 2022 (Has, Krisnana and Efendi, 2024) The World Health Organization (WHO) has a global target of reducing stunting by 40 % for children under 4 years old by 2050 (de Onis and Branca, 2016; Abdullah *et al.*, 2025) In Indonesia, stunting is an urgent public health problem and has become a major focus on the national health agenda. Data from the Ministry of Health of the Republic of Indonesia shows that the prevalence of stunting in children under the age of five reached 27.6 % in 2020, which means that almost one in three children in Indonesia is stunted. (Kemenkes RI, 2024a) Stunting, a kind of chronic malnutrition, continues to be a public health concern. Children who suffer from stunting, which is brought on by chronic malnutrition and recurrent illnesses, are shorter than average for

their age. Malnutrition during early childhood may influence cognitive, social, and behavioral development during this critical period, which may affect the labor market and economic outcomes later in life. Although the brain continues to develop throughout life, its structure and capacity are largely formed by age five.(Fox, Levitt and Nelson III, 2010; Dessie *et al.*, 2025) According to Riskesdas 2018 data, the national stunting prevalence is 30.8%, which is still significantly higher than the WHO cutoff of 20%. According to the World Health Organization (WHO) Child Growth Standard, stunting is based on the length-for-age index (PB/A) or height-for-age index (TB/A) with a limit (z-score) of less than -2 SD (Rambu Podu Loya, 2017) Stunting is still a nutritional problem in Indonesia that has not been resolved. Stunting will cause long-term impacts, namely disruption of physical, mental, intellectual, and cognitive development. Children who are stunted up to the age of 5 years will be difficult to correct so that it will continue into adulthood and can increase the risk of offspring with low birth weight (LBW). The prevalence of stunting in several countries in Southeast Asia, such as Myanmar, is 35%, Vietnam 23%, and Thailand 16%. The prevalence of stunting in Indonesia According to the 2018 Basic Health Research is 30.8 percent, decreasing from 2013 by 37.2% (Badan Penelitian dan Pengembangan Kesehatan, 2013)

Based on the preliminary survey conducted, it shows that Deli Serdang Regency is one of the regencies with the highest prevalence, namely 33.8% in 2023. (Kemenkes RI, 2024b). Stunting is influenced by many factors, from the maternal to the postnatal phase. Factors that influence the incidence of stunting include inadequate nutrition of pregnant women, chronic diseases suffered by children since birth, the number of children living in one house, and the socioeconomic status of the family. Other major factors that cause stunting in Indonesia are poverty, lack of access to clean water, poor environmental conditions, and lack of clean and healthy living behaviors. All of these factors contribute to a greater risk of disease and death in children with stunting.(Beal *et al.*, 2018; Yulistianingsih and Siswati, 2022; Garina *et al.*, 2024) The prevalence of stunting is even higher than other nutritional problems in toddlers. Low cognitive function, decreased productivity, and an increased risk of non-communicable diseases in adulthood are all consequences of stunting. Consequently, determining the causing causes is crucial. The purpose of this study is to examine how maternal knowledge, infectious diseases, parenting styles, and family income impact the prevalence of stunting at the Namorambe Health Center in Deli Serdang.

METHOD

This study was conducted between May and June 2024 using a cross-sectional study approach. The study population consisted of 1,005 toddlers aged 1 to 5 years from the Namorambe Health Center service area. The sampling formula to be more generalized used the Slovin formula so that a sample of 91 people was obtained as a sample. The sampling method used the Random Sampling technique, namely sampling with a random system so that each member of the population has the opportunity to become a sample member. A standardized questionnaire was used to obtain data from mothers of toddlers. Parenting patterns, maternal expertise, history of infectious diseases, and family income are examples of independent factors. The incidence of stunting determined by measuring height according to age (TB/U) using WHO standards is the dependent variable. The chi-square test was used for univariate and bivariate data analysis.



RESULT

Based on the research that has been carried out, the following results were obtained regarding stunting. The bivariate analysis's findings revealed. For bivariate analysis as follows:

1. Relation between Parenting Styles and Stunted

The results of the crosstab analysis obtained the relationship between maternal parenting style and stunting in children as follows.

Table. 1 The relationship between parenting patterns and stunting incidence in Deli Serdang

Pola Asuh	Stunted				Total		P Value
	Stunted		Not Stunted				
	n	%	n	%	n	%	
Less	37	77,1	11	22,9	48	100	0,000
Good	15	34,9	28	65,1	43	100	
Total	52	57,2	39	42,9	92	100	

Source : Primer Data

Based on the table above, it can be seen that toddlers with less supportive parenting patterns tend to experience stunting by 77.1%. And the p value results show a figure of 0.000, which is <0.05 , there is a relationship between parenting patterns and the incidence of stunting.

2. Relation Between Knowledge with Stunted

The results of the crosstab analysis obtained the relationship between maternal knowledge and stunting in children as follows.

Table. 2 The relationship between mother knowledge and stunting incidence in Deli Serdang

Knowledge	Stunted				Total		P Value
	Stunted		Not Stunted				
	n	%	n	%	n	%	
Less	39	83,0	8	17,0	48	100	0,000
Good	13	29,5	31	70.5	43	100	
Total	52	57,2	39	42,9	92	100	

Source : Primer Data

Based on the table above, it can be seen that parents with less knowledge tend to have children who experience stunting by 83.0%. The p-value results show a figure of 0.000 which means <0.05 , so there is a relationship between knowledge and the incidence of stunting.

3. Relation Between History of Infectious Diseases Stunted

The results of the crosstab analysis obtained the relationship between the history of infectious diseases and stunting in children as follows.

Table. 3 The Relationship between Infectious Disease and stunting incidence in Deli Serdang

History of Disease	Stunted				Total		P Value
	Stunted		Not Stunted				
	n	%	n	%	n	%	
Suffering from an infectious disease	28	73,7	10	26,3	38	100	0,013
Not Infectious	24	45,3	29	54,7	53	100	
Total	52	57,1	39	42,9	91	100	

Source : Primer Data

Based on the table above, it can be seen that children with a history of infectious diseases tend to experience stunting by 73.7%. The p-value results show a figure of 0.013 which means <0.05 , so there is a relationship between knowledge and the incidence of stunting.

4. Relation between Income with Stunted

The results of the crosstab analysis obtained the relationship between income and stunting in children as follows.

Table. 4 The Relationship between Income and Stunting Incidence in Deli Serdang

Descriptive Statistics							P Value
Income	Stunted				Total		
	Stunted		Not Stunted				
	n	%	n	%	n	%	
Low (<2.900.000)	27	62,8	16	37,2	43	100	0,413
High (≥ 2.900.000)	25	52,1	23	47,9	48	100	
Total	52	57,1	39	42,9	91	100	

Source : Primer Data

Based on the table above, it can be seen that families with High-Income experience stunting, which is 52.1%. The p-value results show a figure of 0.413, which means <0.05 , so there is no relationship between income and the incidence of stunting.

DISCUSSION

Childhood malnutrition is a priority global public health problem that adversely affects health and development with potential intergenerational consequences. Linear growth faltering in the first thousand days of life often begins in utero with maternal undernutrition and worsens postnatally with suboptimal infant and young child feeding



practices and infectious diseases. (Ataullahjan et al., 2025) The findings of this study support earlier hypotheses and research that suggest a history of infectious diseases, nutritional expertise, and parenting styles all have a role in stunting. Suboptimal nutritional fulfillment can result from inadequate parenting and ignorance of nutrition. Knowledge of Mothers with stunting toddlers had lower level knowledge (73.3%) than those with normal toddlers (77%). (Sari, 2021). Mother's knowledge plays a very important role in determining how to fulfill children's intake and also the implementation of parenting patterns so that it indirectly plays a role in fulfilling children's nutrition. In addition, a history of infectious diseases also affects Children's appetite is decreased because and food absorption is hampered by infections ISPA and diarrhea. Economic variables continue to play a substantial role indirectly through access to wholesome food and health care, even if income does not exhibit a significant link in this study. Therefore, multifaceted approaches, including targeted and sensitive nutritional interventions, are needed to combat stunting. Low economic status is considered to have a significant impact on the possibility of children becoming thin and short (UNICEF, 2013). According to Bishwakarma in Khoirun et al. (2015), the low family economic status will affect the choice of food consumed so that it usually becomes less varied and small in quantity, especially in food ingredients that function for child growth such as sources of protein, vitamins, and minerals, thus increasing the risk of malnutrition. (Nurmahfuzhah, Herawati and Defina, 2025)

CONCLUSION

The prevalence of stunting in toddlers is significantly correlated with mother knowledge, parenting styles, and history of infectious illnesses. The incidence of stunting and family income do not significantly correlate. In order to decrease stunting, parents must receive ongoing education, and basic health services and infectious disease prevention initiatives must be strengthened.

RECOMMENDATION

Based on the discussion above, recommendations can be given regarding increasing knowledge, Comprehensive interventions are needed, including nutrition education and improving basic health services, to reduce the incidence of stunting. In addition, increasing family income per capita also needs to be considered because family income has an impact on the family's purchasing power for quality food and also high in nutrients.

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