

Risk Factors Causing Stunting in the Community at Sicanang Health Center

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Article Info

Article history:

Received January 8, 2025
Revised February 8, 2025
Accepted February 12, 2025

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ABSTRACT

Stunting is the inadequate intake of nutrients from the womb in children until the age of five, which is characterized by stunted height. As a result of these chronic malnutrition conditions, it can systemically inhibit the development of children in the first two years of life so that children become stunted. This study is a quantitative study with a cross-sectional design conducted at the Sicanang Medan Health Center. For respondent collection, the sampling procedure was carried out using the total sampling technique on stunting data from the Sicanang Medan Health Center. Analysis was carried out with descriptive, bivariate and multivariate analysis using multiple logistic regression analysis test. The analysis was carried out to find the most influential risk factors for the incidence of stunting cases at the Sicanang Health Center. The results of multivariate analysis by considering confounding factors showed that the most influential factors on the incidence of stunting were mothers who married too young (aOR = 0.64; 95% CI = 0.21-1.49; p-value = 0.046) and child spacing below 2 years young (aOR = 1.53; 95% CI = 0.22-2.83; p-value = 0.023).

Keywords: *Toddlers, Malnutrition, Stunting*

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1. INTRODUCTION

Stunting is the inadequate intake of nutrients from the womb in children until the age of five, which is characterized by stunted height [1]. As a result of this chronic malnutrition, it can systemically inhibit the development of children in the first two years of life, so that children become stunted. In developing countries, stunting is a serious public health problem and its prevalence remains high [2]. Not only can long-term malnutrition in the first 1,000 days of life (HPK) cause stunting, but it is also accompanied by, among others, maternal nutritional deficiencies during pregnancy, not doing exclusive breastfeeding, complementary feeding for children who do not meet the daily nutrition for child growth and development, frequent exposure to infections, low socio-economic status, premature birth, short body length, lack of maternal height and low maternal education/knowledge, poor water and environmental sanitation, urbanization, and both natural and artificial disasters [3].

Infants with an incomplete basic immunization history can be at risk of stunting, based on research conducted by Noorhasanah, Tauhidah, and Putri, which states that toddlers with an incomplete basic immunization history have a risk of 1.983 times being stunted compared to toddlers with a complete basic immunization history [4]. To ensure the quality of future generations, it is important to prevent stunting [5]. The incidence of stunting must also receive special attention from parents, surrounding families, and the government. In general, stunting is often not realized by families; after two years, it is only seen and has an impact on cognitive abilities and long-term productivity, and can even have an impact on death. The Sustainable Development Goals (SDGs) target number 2, namely end hunger, achieve security, improve nutrition, and promote sustainable agriculture by 2030, is an implementation in an effort to reduce the incidence of stunting is an implementation in achieving to end all forms of malnutrition both stunting and hunger in children under 5 years of age in the world (Kencana Sari et al, 2022). Breast milk is the ideal nutrition for infants because it contains nutrients that best suit the needs of infants and a set of protective substances against various diseases. The WHO recommends that babies be exclusively breastfed for the first 6 months [2].

The Indonesian government has issued Kepmenkes No.450/MENKES/IV/2004 on exclusive breastfeeding of infants in Indonesia and Law (UU) No. 36 Article 128 of 2009 on Health in proclaiming WHO recommendations since 2004 [7]. Nationally, the coverage of exclusive breastfeeding in Indonesia fluctuates and has shown a downward trend over the past few years; the results of the 2018 Riskesdas showed that the proportion of exclusive breastfeeding in infants aged 0-5 months in Indonesia was 37.3% of breast milk substitutes [8]. According to the Indonesian Ministry of Health, giving formula or other breast milk additives too early can interfere with exclusive breastfeeding and increase morbidity rates [9][10].

The best food for babies after birth is breast milk, which is advantageous of breast milk in terms of nutrition, immunity, psychology, economy [11]. The first breast milk given to babies is called colostrum, which contains fat and protein and can maintain the immune system so that children are resistant to the disease. Low rates of exclusive breastfeeding can trigger stunting in children. Good breastfeeding can help maintain the nutritional balance of children so that normal and optimal child growth is achieved [12][13].

2. METHODS

This was a quantitative study with a cross-sectional research design conducted at the Sicanang Health Center in Medan from December 2023 to January 2024. The sampling procedure was carried out using a total sampling technique on stunting data in the Sicanang Health Center area, Medan, North Sumatra [14]. The total population that was then sampled was 60 stunted toddlers, who were categorized as short and very short. The data collection instrument was carried out using a questionnaire collected, from stunting data, respondent identity data, and data on factors causing stunting, especially in the Sicanang Health Center area in Medan [15].

The existing data were analyzed using descriptive analysis, bivariate analysis was carried out using the logistic regression analysis test, and multivariate analysis was carried out to control for confounding factors using the multiple logistic regression analysis test [16]. The analysis was conducted to determine the factors that had the greatest influence on the incidence of stunting in the work area of the Sicanang Health Center, Medan. STATA 16.0 software was used to analyze the data. Statistical significance was set than 0.05. Ethical approval was obtained from Satya Terra Bhinneka University Research Ethics Committee No: 001/SK/KE-STB/I/2024 [17].

3. RESULTS AND DISCUSSION

Data were analyzed by descriptive analysis to determine the stunting toddlers' descriptions of respondents [18]. This study was conducted on 60 toddlers diagnosed with stunting in the working area of the Sicanang Health Center, Medan City. The analysis showed that the average body weight of the stunted toddlers at the Sicanang Health Center was 9.5 kg while the average height was 82.2 cm. Socio-demographic data from mothers and fathers with stunted toddlers show that the average age of mothers of toddlers is 31 years old and belongs to the reproductive age of the adult age category. Other research results have shown that stunting is influenced by many complex factors. A stunted toddler is a toddler who is malnourished for a long period and in a critical period of growth and development, especially during pregnancy in the 2nd trimester [4]. Maternal age does not have a significant influence on the incidence of stunting; whether adolescents or adults, parenting behavior, and infant nutrition were not significantly different [7]. Good nutrition and maximum parenting occur in mothers who have good knowledge of it [8]. Maternal knowledge affects nutrition and directly affects the weight and height of children.

Tabel 1. Descriptive Sociodemographics of Stunted Toddlers

Variable	Frequency	%
Father's Education		
Higher education	8	25
Low education	24	75
Mother's Education		
Higher education	13	40.6
Low education	19	53.4
Father's occupation		
Labor	25	41.7
Driver	4	6.7
Private employee	5	8.3
Fisherman	20	33.3
Self-employed	5	8.3
Security guard	1	1.7
Mother's Occupation		
Housewife	60	100
Nutrition Status		
Malnutrition	13	21.7
Poor nutrition	47	78.3

Stunting Category		
Very Short	28	46.7
Short	32	53.3
Main Water Source		
Worth	56	93.3
Not worth it	4	6.7
Availability of Latrines		
Worth	46	76.7
Not worth it	14	23.3
Mother's Age of Marrying Too Young		
Yes	2	3.3
No	58	96.7
Children too close together by 2 years		
Yes	1	1.7
No	59	98.3
Too many children ≥ 3		
Yes	9	15
No	51	85
Exclusive breastfeeding		
Yes	28	36.7
No	32	63.3
BPJS Usage		
Yes	50	83.3
No	10	16.7

The results of the sociodemographic analysis showed that both mother and father's education levels were low (25% and 75%, respectively). Almost all fathers of stunting toddlers work as fishermen and laborers [19]. This is in contrast to the work of mothers who are unemployed. The results showed that the nutritional status of the stunted children was in the malnutrition category (21.7% vs. 78.3%).

In the stunting category, toddlers with short categories accounted for 53.3% and those with very short categories accounted for 46.7%. Fulfillment of the main water source was the most suitable for consumption (93.3%), and the availability of latrines in the proper category was 76.7%. The results of the analysis showed that most maternal factors (Mother's Age Married Too Young, Child Spacing Too Close 2 Years, Number of Children Too Many ≥ 3) did not indicate a risk of stunting with each of them amounting to (3.3% vs 1.7% vs 15%). Stunted toddlers did not receive as much exclusive breastfeeding (63.3% [20]).

Table 2. Bivariate Analysis of the Effect of Stunting on Exclusive Breastfeeding

Variable	Stunting Category		OR (CI 95%)	p-value
	Short F (%)	Very Short f (%)		
Exclusive breastfeeding				
No	22 (57.9)	10 (45.5)	0.47 (0.31-0.64)	0.000*
Yes	16 (42.1)	12 (54.6)		
Father's Education				
Higher education	8 (25.0)	10 (35.7)	0.56 (0.32-0.79)	0.000*
Low education	24 (75.0)	18 (64.3)		
Mother's Education				
Higher education	13 (40.6)	12 (42.9)	0.48 (0.28-0.68)	0.000*
Low education	19 (53.4)	16 (57.1)		
Nutrition Status				
Malnutrition	8 (61.5)	5 (38.5)	0.38 (0.10-0.66)	0.008*
Poor nutrition	24 (51.1)	23 (48.9)		
Main Water Source				
Worth	30 (53.6)	26 (46.4)	0.46 (0.33-0.59)	0.000*
Not worth it	2 (50)	2 (50)		
Availability of Latrines				

Worth	23 (50)	23 (50)	0.50 (0.35-0.65)	0.000*
Not worth it	9 (64.3)	5 (35.7)		
Too many children ≥ 3				
Yes	6 (66.7)	3 (33.3)	0.33 (-0.03-0.67)	0.052
No	26 (50.9)	25 (49.0)		
Mother's Age of Marrying Too Young				
Yes	0 (0)	2 (100)	1 (0.29-1.70)	0.006*
No	32 (55.2)	26 (44.8)		
Children too close together by 2 years				
Yes	0 (0)	1 (100)	1 (-0.01-2.00)	0.051
No	32 (54.2)	27 (45.8)		
BPJS Usage				
Yes	27 (54.0)	23 (46.0)	0.46 (0.32-0.60)	0.000*
No	5 (50.0)	5 (50.0)		

*significant p -value < 0.05

The results of bivariate analysis showed that the risk factors that had a significant effect on the incidence of stunting were exclusive breastfeeding (OR = 0.47; 95% CI = 0.31-0.64), father and mother education, nutritional status (OR = 0.38; 95% CI = 0.10-0.66), and availability of latrines. availability of clean water sources, mothers who marry too young, and use of BPJS (OR = 0.46; 95% CI = 0.32-0.60).

Table 3. Multivariate Analysis of the Effect of Stunting on Exclusive Breastfeeding

Variable	OR (CI 95%)	p -value
Exclusive breastfeeding	-0.94 (-0.38-0.199)	0.522
Father's Education	-0.18 (-0.51-0.15)	0.291
Nutrition Status	0.27 (-0.10-0.65)	0.150
Mother's Education	-0.04 (0.34- (-0.27)	0.768
Availability of Latrines	-0.28 (0.16- (-0.73)	0.831
Main Water Source	-0.78 (-0.70-1.64)	0.589
Mother's Age of Marrying Too Young	0.64 (0.21-1.49)	0.046*
BPJS Usage	-0.22 (-0.18-0.62)	0.271
Children too close together by 2 years	1.53 (0.22-2.83)	0.023*
Too many children ≥ 3	0.59 (-0.02-1.2)	0.059

*significant p -value < 0.05

The results of multivariate analysis that considered confounding factors showed that the most influential factors on the incidence of stunting were mothers who were too young (aOR = 0.64; 95% CI = 0.21-1.49; p -value = 0.046) and child spacing below 2 years of age (aOR = 1.53; 95% CI = 0.22-2.83; p -value = 0.023).

Discussion

A stunted toddler is a toddler who is malnourished for a long period and in a critical period of growth and development, especially during pregnancy in the 2nd trimester [4]. Maternal age does not have a significant influence on the incidence of stunting; whether adolescents or adults, parenting behavior, and infant nutrition were not significantly different [7]. Good nutrition and maximum parenting occur in mothers who have good knowledge of it [8]. Maternal knowledge affects nutrition and directly affects children's weight and height [21].

Stunting in childhood is still a challenging problem; stunting occurs due to lack of child nutrition, which risks suboptimal brain development and increases the risk of metabolic diseases that reduce productivity in the future [22]. Research shows that the inability of mothers to provide adequate complementary foods and quality-exclusive breastfeeding puts their children at risk for suboptimal growth and development [23]. The complete nutritional content of breast milk includes 60% whey protein (easily digestible protein) and 40% casein protein (protein that is more difficult to digest), which proves that the nutrients in breast milk are of high quality and can affect child growth and development optimally (Palmeira P, et al, 2016). The trend of stunting cases towards exclusive breastfeeding at the Sicanang Health Center can be a very important topic for discussion in the context of public health. Stunting is a global health problem of serious concern because of its long-term impact on child growth and development [25]. Exclusive breastfeeding, as the best way to feed infants, plays a crucial role in preventing stunting [26]. Exclusive breastfeeding, which is provided without additional food or drink for the first six months of a baby's life, plays a

very important role in preventing stunting [27]. Breast milk contains nutrients that are essential for optimal growth and development, and has anti-infective properties that protect babies from infectious diseases that can cause stunting [28].

Several factors can lead to high cases of stunting in an area, including the Sicanang Health Center. These include limited access to health services, lack of knowledge about the importance of exclusive breastfeeding, inappropriate feeding practices, poor economic conditions, and lack of sanitation and hygiene issues [29]. Epidemiological data recording the number of stunting cases at the Sicanang Health Center can provide an overview of the trend of such cases over time [30][31]. This trend is important for monitoring because it can provide information about the success or failure of the intervention programs that have been carried out. It is important to make efforts to prevent and control stunting at the community level, including at the Sicanang Health Center [32]. This can include counseling on the importance of exclusive breastfeeding and healthy feeding practices, improving access to quality health services, and social assistance programs that can help economically vulnerable families [33]. Puskesmas play an important role in detecting, preventing, and managing stunting at the community level [6]. This includes educating pregnant and lactating women about the importance of balanced nutrition, providing counseling and support to breastfeeding mothers to promote exclusive breastfeeding practices, and conducting regular child growth-monitoring programs [34]. Addressing stunting requires close collaboration among the government, health institutions, NGOs, and local communities. Synergy between various parties can strengthen intervention programs and maximize their impact in reducing stunting cases at Sicanang Puskesmas. This discussion can serve as a basis for formulating more effective strategies to address stunting in the Sicanang Health Center and to promote the health and well-being of children in the community [28].

Previous research has shown that nutrition in children is also influenced by good parenting from parents and grandparents [35]. Therefore, nutritional fulfillment can also be influenced by family environment. Providing this nutrition will have an impact on preventing stunting in children; with good education and knowledge given to parents and accompanied by improved nutrition in children, stunting cases can be overcome [35].

4. CONCLUSION

The results of multivariate analysis that considered confounding factors showed that the most influential factors on the incidence of stunting were mothers who were too young (aOR = 0.64; 95% CI = 0.21-1.49; p = 0.046) and child spacing below 2 years of age (aOR = 1.53; 95% CI = 0.22-2.83; p = 0.023). The most influential factors on the incidence of stunting were mothers who married too young and had a child spacing below 2 years of age.

ACKNOWLEDGEMENTS

We would like to express our sincere gratitude to all those who contributed to this research. Our deepest appreciation goes to the faculty and staff of the D-III Midwifery Study Program at Universitas Satya Terra Bhinneka, Medan, for their unwavering support and guidance throughout our study. We also extend our thanks to the Sicanang Health Center in Medan for allowing us to conduct our research and for providing valuable data. Special thanks go to all the mothers and families who participated in this study; without their cooperation, this research would not have been possible. Finally, we acknowledge the financial support received from the university, which made this study feasible. We are grateful for the encouragement and assistance from our peers and mentors, which motivated us to pursue this important topic.

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