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## RISK FACTORS FOR STUNTING IN CHILDREN AGED 24-59 MONTHS IN TUKKA DOLOK VILLAGE, PAKKAT DISTRICT, HUMBANG HASUNDUTAN REGENCY INDONESIA

Grace Tinasari Sitorus<sup>1</sup>, Masdalina Pane<sup>1,2</sup>, Asima Sirait<sup>1</sup>, Donal Nababan<sup>1</sup>, Netty Sembiring<sup>1</sup>

<sup>1</sup> Sari Mutiara University, Medan, North Sumatera, Indonesia

<sup>2</sup> National Research and Innovation Agency-BRIN, Jakarta, Indonesia

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### ABSTRACT

**Background:** Stunting is a form of growth failure (growth faltering) due to the accumulation of insufficient nutrition that lasts for a long time starting from pregnancy until the age of 24 months. The purpose of this research to analyze the risk factors for stunting in children aged 24-59 months in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency year 2022. **Methods:** This type of research observational using a case control study design. The population in this study were all households with children aged 24-59 months, the sample size in this study was calculate dusing random sampling namely as many as 63 children, 21 children as case samples and 42 children as control samples. Data were analyzed using univariate, bivariate and multivariate analysis using chi-square test and logistic regression analysis. **Results:** The results of the bivariate analysis showed that there was a relationship between mother's knowledge about food intake ( $p=0.001 < \alpha=0.05$ ), parenting patterns ( $p=0.007 < \alpha=0.05$ ), environmental health ( $p=0.001 < \alpha=0.05$ ), with the incidence of stunting. The results of multivariate analysis showed that the most dominantly related variable was environmental health ( $p=0.017$ ; OR=5.075 95% CI 1.344-19.160). **Conclusion:** the influence of mother's knowledge about food intake and environmental health is very large on the incidence of stunting. So it is recommended to improve sanitation facilities in the household as well as increase the mother's knowledge about food intake until she is able to apply it.

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Correspondence Author: Grace Tinasari Sitorus,  
[grace.tinasari@gmail.com](mailto:grace.tinasari@gmail.com), Sari Mutiara University, Medan, North Sumatera, Indonesia

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## INTRODUCTION

The average prevalence of stunting under five in Indonesia in 2005-2017 was 36.4% (Data and Information Center, Ministry of Health of the Republic of Indonesia, 2018). The Health Profile of North Sumatra Province in 2019 recorded problems related to the nutritional prevalence of stunting under five of 26.1%. This figure shows that the prevalence of stunting in North Sumatra is moderate when viewed from the limits set by the World Health Organization (WHO) in 2005, namely low stunting prevalence < 20%, moderate 20-29%, high 30-39% and very high >40%.

Meanwhile, in 2020, based on the electronic application - Community Based Nutrition Recording and Reporting, the data from the analysis of stunting measurement data at the Humbang Hasundutan Regency level in 2020 was 23.65% (moderate), for Pakkat District it was 21.7% (medium) and in Tukka Village. Dolok by 30% (high).

Researchers feel it is important to know the more dominant factors in this village that cause stunting under five, also want to know how the influence of environmental health factors is seen from the environmental conditions in this village in 2021, still 28% of households have access to drinking water that is suitable for consumption and still there are 36% of households with toddlers still defecating carelessly (open defecation) which of course greatly affects the clean and healthy life style of the residents in this village because in the program to accelerate the reduction in stunting, which is one of the main programs of the Regent of Humbang Hasundutan in terms of current health so far, the focus has been on the nutritional intake of toddlers and child care patterns.

Therefore, the objective study was to analyzed risk factors for stunting in children aged 24-59 months in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency.

## METHODS

This type of research is an observational study using a case control study design. It was conducted in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency starting from April to August 2022. The population in this study were all house holds with children aged 24-59 months, namely 93 (ninety three) people. The sample in this study was conducted using a probability sample, namely simple random sampling. In this study, the case

group was selected, namely families with stunting children and control groups, namely families with non-stunted children with a ratio of 1:2, so that the sample size for the case group was 21 children and the sample size for the control group was 42 children. 63 children. The research instrument used in this study was a question naire which has been previously tested by researchers in the field, namely in the form of validity and reliability tests. This research was conducted with univariate analysis, bivariate analysis with chi-square test, and multivariate analysis with logistic regression test.

## RESULTS

The results of data analysis are presented in the table below:

**Table 1**  
Frequency Distribution Based on Stunting Incident and Characteristics of Respondents

Variables	Frecuency (n)	Percentage (%)
Stunting Incident		
1. Yes	21	33.3
2. No	42	66.7
Mother's Knowledge of Food Intake	41	65
1. Well	22	35
2. Not Good		
Food Security according to Mother's Perception	42	67.7
1. Sufficient	21	33.3
2. Not Sufficient		
Environmental Health		
1. Well	31	49
2. Not Good	32	51
Parenting		
1. Well	30	49
2. Not Good	33	51
Utilization of Health		
1. Well	35	56
2. Not Good	28	44
History of Infection Diseases		
1. Yes	41	65
2. No	22	35

Based on Table 1, stunting incident was found as many as 33.%. Majority of mother's knowledge of food intake, parenting, environmental health, utilization of health were well, and have a history of infection diseases.

**Table 2**  
Association between Stunting Incident and Characteristics of Respondents

Variables	Stunting Incident				OR	p value
	Yes		No			
	n	%	n	%		
History of Infection Diseases						
1. Yes	13	61.9	28	66.7	-	0.709
2. No	18	38.1	14	33.3		
Mother's Knowledge of Food Intake						
1. Well	4	19	26	61.9	4.397	<b>0.001</b>
2. Not Good	17	81	16	38.1		
Food Security according to Mother's Perception						
1. Sufficient	11	52.3	31	73.8	-	0.089
2. Not Sufficient	10	47.7	11	26.2		
Environmental Health						
1. Well	4	19	27	34	5.075	<b>0.001</b>
2. Not good	17	81	15	41,7		
Parenting						
1. Well	5	87.5	25	12,5	-	<b>0.007</b>
2. Not Good	16	66.3	17	33,7		
Utilization of Health Services						
1. Well	14	94.4	21	5,6		0.209
2. Not good	7	59.1	21	40.9		

Based on Table 2, the results of a chi-square test showed that the variables were significantly related to stunting incident were mother's

knowledge of food intake, environmental health, and parenting.

**Table 3**  
The Last Model of Multiple Logistic Regression Test

Variables	p value	OR (95% CI)
Mother's Knowledge of Food Intake	0.030	4.397 (1.555 to 16.735)
Environmental Health	0.017	5.075 (1.344 to 19.160)

Based on Table 3, the last model of the multiple logistic regression test showed that mothers

knowledge and environmental health were the dominant factor to determine stunting incident.

## DISCUSSION

From the final results of the study based on multivariate analysis that was tested statistically with logistic regression tests, it was found that what influenced the incidence of stunting in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency in 2022 was mother's knowledge about food intake and environmental

health. This is of course contrary to the stunting theory where the direct factors that should influence stunting are a history of infectious diseases and food intake. This makes researchers aware of the limitations in this study, researchers analyze the results of interviews with the community where answers from respondents only rely on memory or in the form of perceptions of

what they have done and happened before. Such as a history of infectious diseases, it was found from the results of asking whether children aged 0-24 months had experienced an infectious disease and confirmed through medical records in health services without direct observation, after statistical testing it was found that it did not affect the incidence of stunting in this village. In fact, poor environmental health is related to the occurrence of infectious diseases which are known to affect stunting.

A similar study was written by Narsikhah (2012) which was conducted in East Semarang District which showed that a history of infectious disease in this case acute upper respiratory tract infection was a risk factor for the incidence of stunting which was not significant. Also in Nurcahyo's research (2010) in his research results also found that the incidence of ARI in children under five had no relationship with the nutritional status of TB/U. Gerungan (2014) where the results of calculations using the Fisher's Exact test obtained p value more than 0.05), it can be concluded that there is no relationship between a history of infectious diseases and the incidence of stunting in children aged 13-36 months in the working area of the Puskesmas. Manado City Tuminting.

From the statistical test results with the chi-square test of 0.001 because the p value  $<0.05$ , it can be concluded that there is a relationship between maternal knowledge about food intake and the incidence of stunting in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency. This is obtained from the results of questionnaires and direct observations of researchers in this village who found mother's knowledge of children's food intake according to their age is very low.

Starting from an understanding of the need for pregnancy planning, the need to fulfill maternal nutrition when carrying a child, what is exclusive breastfeeding and complementary feeding is still not quite right. Where the majority of people when asked about planning for pregnancy feel that it is too much to do, let alone talk about the fulfillment of maternal nutrition during pregnancy, it is different from the understanding of breastfeeding that is less precise. Respondents think that exclusive breastfeeding is a child who is breastfed from 0-6 months of age without making a problem during that period the child is given food and other drinks because breast milk alone is not enough to fulfill the child's nutrition. Also at the MP-ASI stage, it is no longer appropriate for the nutritional

needs of children, even though parents of children often receive health education but it is still very difficult to change the mother's mindset. The nutritional needs of children according to age are not considered important by mothers, what is certain for them that children are not hungry, it is enough without thinking about the quality of their nutritional intake, respondents' knowledge of micro and macro nutrition is very low and when they are educated their curiosity is very low because they think only with white rice humans can live,

This is in line with what was stated by WHO (2020) that stunting can be caused by inadequate food, among others, due to low food quality and inadequate administration. Followed by Ernawati (2013) research which states that after the child is born, parenting is one of the factors that affect the growth and development of children and children's nutritional status.

From the statistical test results with the chi-square test of 0.108 because the p value  $<0.05$ , it can be concluded that there is a relationship between environmental health conditions and the incidence of stunting in Tukka Dolok Village, Pakkat District, Humbang Hasundutan Regency.

This is obtained from the results of questionnaires and direct observations by researchers the condition and behavior of the community in maintaining environmental health is still not good. Besides personal hygiene which is quite bad, such as the culture of washing hands with soap which is still not a culture that is carried out properly, open defecation is still quite common in this village, the unavailability of latrine facilities is not a burden for some people because it is right behind the community's house. directly to the riverbank which is very easily accessible to be used as a public latrine, even though they also use the river for clean water needs such as bathing, washing cooking utensils and eating utensils as well as washing clothes.

There are also some people who still use public bathrooms that flow water from the mountains as public latrines, even though there are no healthy latrine facilities, sewage flows directly into public sewers and some are still comfortable with cemplung latrines that do not meet health requirements. In addition to surface water, unprotected mountain springs are a source of clean water and drinking water for most of the community. This is very relevant to the results of this study.

Previous research that has the same research results is the Mukaramah research (2020)

conducted in the Mesjid Village which shows that environmental conditions there are still very minimal evidence from the results of the questionnaire which states that clean water sanitation and the lack of latrine aspects greatly affect stunting. In addition, Zahrawani's research (2020) states that environmental sanitation is a health effort carried out by maintaining and protecting the environmental cleanliness of the subject. Poor sanitation can be a source of disease, increasing morbidity and mortality.

## CONCLUSION

In conclusion, there is a significant relationship between maternal knowledge about food intake (p-value = 0.001) and environmental health (p-value = 0.001) with the incidence of stunting in Tukka Village. This may indicate that mothers of children under five in Tukka Dolok

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Village have poor knowledge about food intake and live in an unhealthy environment. Therefore, it is recommended to mothers who have toddlers to increase their knowledge about food intake and improve child care patterns as well as improve the health of the environment around them.

## CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

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