

Associations between Parenting Style and Nutritional Knowledge on Stunting in Children Aged 24-60 Months in Ketang Health Center, East Nusa Tenggara, Indonesia

Heribertus Handi

Nursing Study Program, Universitas Katolik Indonesia Santu Paulus Ruteng

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ABSTRACT

Background: Stunting is a condition of children under five with a z-score of less than -2 standard deviation (stunted) and less than -3 standard deviation (severely stunted). Interventions to accelerate stunting prevention require intervention and coaching, such as knowledge and parenting of toddlers in the community. This study aimed to determine the relationships between knowledge, and stunting in children aged 24-60 months.

Subjects and Method: This was a retrospective cross-sectional study conducted in the Ketang Health Center, East Nusa Tenggara, Indonesia. A total of 60 children aged 24-60 months and their mothers was selected using purposive sampling. The independent variables were parenting and nutritional knowledge. The dependent variable was stunting. The instruments of this study were height measurement tools, knowledge, and parenting questionnaires. The data were analyzed using multiple logistic regression.

Results: Children who have mothers with poor parenting are 0.15 times more stunted than mothers with good parenting. Nutrition knowledge is 0.04 times less likely to be stunted than mothers with good nutrition knowledge.

Conclusion: Mothers with poor parenting and nutritional knowledge increase the risk of stunting.

Keywords: Nutritional knowledge, parenting, stunting.

Correspondence:

Heribertus Handi. Nursing Study Program, Universitas Katolik Indonesia Santu Paulus Ruteng. Jl. Jenderal A. Yani No. 10, Langke Rembong, East Nusa Tenggara. Email: herihandi84@gmail.com. Mobile: 085236119205.

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BACKGROUND

Indonesia continues to face nutrition problems that have serious consequences for the quality of its human resources. One of the government's targets in the National Medium-Term Development Plan for 2020 to 2024 is a program to reduce the stunting rate in Indonesia to 14% by 2024 (Kemenkes

RI, 2020). According to the Ministry of Health (Kemenkes), stunting is a condition of children under five with a z-score value of less than -2 Standard Deviation (stunted) and less than -3 Standard Deviation (severely stunted) (TNP2K, 2017). Malnutrition occurs when the baby is in the womb and the early days of the child's born but stunting

only appears after the child is 2 years old. Children aged 24-60 months are included in the group of vulnerable groups of malnutrition (the group of people who most easily suffer from malnutrition), while at that time they are experiencing a relatively rapid growth process. Linear growth disorder or stunting, occurs mainly in the first 2 to 3 years of life and is a reflection of the effects of the interaction between lack of energy intake and nutritional intake, as well as infection (Darwia, 2017).

Globally in 2020, about 22% or 149.2 million children under the age of 5 are stunted. The Asian region is the region with the largest stunting rate with stunting sufferers reaching 79 million children. The prevalence of stunting in the Southeast Asia region reached 27.4% or around 15.3 million children, the prevalence of stunting in Indonesia in 2007 was 36.8% and increased in 2013 by 37.2% and to 30.8% in 2018, while data Indonesian Toddler Nutrition Status Study showed the prevalence of stunting in Indonesia in 2019 was 27.7%. The results of the 2021 Indonesian Nutritional Status Survey show a decrease in stunting prevalence to 24.4%, but this prevalence is still far from the WHO recommendation, namely stunting below 20% (Par'i et al., 2017).

East Nusa Tenggara is the province with the second-highest stunting rate after West Sulawesi at 38.7% (P2PTM Kemenkes RI, 2018a). It was recorded that 269,650 of the 633,000 children under five in East Nusa Tenggara were stunted. The results of the 2021 SSGI survey showed that the prevalence of stunting in the East Nusa Tenggara region was 37.8% (Par'i et al., 2017). Stunting data in February 2022 in Manggarai was 5,320 people, while in August 2022 it was reduced to 4,313 toddlers (Pemkab Manggarai, 2022). Manggarai Regency, especially in the Lelak District area of the Ketang Health Center, the number of

stunted toddlers based on the results of the analysis of stunting measurements at the Manggarai Regency level, which is 442 toddlers.

Based on the results of previous studies, stunting data measurements in the Ketang Health Center area are carried out every six months. In 2021, the stunting rate in February was 428 children and in August there were 353 children. Stunting data in February 2022, the number increased to 370 children and in August 2022 to 272 children. Meanwhile, in February 2023, the number of stunted children was 246 children

Stunting has the potential to slow brain development, with long-term impacts in the form of mental retardation, low learning ability, and the risk of chronic diseases such as diabetes and hypertension (P2PTM Kemenkes RI, 2018). mentioned that stunting has an impact on decreasing the intellectuality, quality, and cognitive ability of children. Optimal growth can also reduce the burden of the risk of degenerative diseases as a residual impact carried from the womb. Degenerative diseases such as diabetes, hypertension, heart, and kidney are diseases that require high medical costs (Aryastami and Tarigan, 2017).

Parenting plays a big role in the growth and development of children because food intake in children is fully regulated by the mother. Parenting is very rarely researched even though parenting has a very important contribution to the incidence of stunting. The parenting style applied by mothers to children greatly determines the intake of food consumed, because the better the parenting style, the better the child's eating consumption pattern, so that nutritional needs in children can be met and the nutritional status of children is good (Nasution and Susilawati, 2022).

Interventions to accelerate stunting prevention in the Lelak sub-district have

been going well. The Health Office and related OPDs have carried out monitoring and analysis of problems that occur in the village. However, there are still some indicators that are not optimal and still require intervention and coaching, such as parenting patterns for toddlers and food consumption patterns (Pemkab Manggarai 2022).

The condition of stunting experienced by children is a result of a history of inadequate past nutritional intake, so it is necessary to study how parenting and food consumption patterns are applied by mothers to children. Based on the description above, this study aims to relate nutrition knowledge and parenting patterns to the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center Area.

SUBJECTS AND METHOD

1. Study Design

This study used a cross-sectional design, where each research topic is only viewed once and measurements are made on inclusion and exclusion variables. This research was conducted in the Ketang Health Center, East Nusa Tenggara.

2. Population and Sample

The population was all mothers of children aged 24-60 months who are stunted in the Ketang Health Center Area, and who live in Bangka Lelak village and Lentang village. A total of 60 children were selected as samples using purposive sampling.

3. Study Variables

The research variables consist of independent and dependent variables. The independent variables in this study were know-

ledge and parenting. The dependent variable in this study is stunting.

4. Conceptual Definition

Nutritional Knowledge: knowledge related to sources and processed food, nutrients in food, and food safe for consumption so does not cause disease,

Parenting: is the behavior of parents in caring for or caring for their children.

Stunting: is a condition of children under five with a z-score of less than -2 Standard Deviation (stunted) and less than -3 Standard Deviation (severely stunted).

5. Study Instruments

The instruments in this study are height measurement instruments, parenting questionnaires, and Food Frequency Questionary

6. Data Analysis

Data processing using univariate, bivariate, and multivariate analysis (multiple logistic regression).

RESULTS

1. Univariate Analysis

This study aims to relate nutrition knowledge and parenting patterns to the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center Area. Table 1 shows that out of 60 respondents, most respondents have stunted children with a short category (stunted), namely 42 respondents (70.0%). The parenting style with the highest number is missive parenting with 22 respondents (36.7%), and the least is democratic parenting with 9 respondents (15.0%). The majority of eating patterns in the Potato Health Center area are still lacking (86.7).

Table 1. Sample characteristics based on stunting status in the Community Health Center Ketang (n=60)

Characteristics	Category	Frequency (n)	Percentages (%)
Status Stunting	Severe stunted	18	30.0
	Stunted	42	70.0
Parenting	Democratic	9	15.0
	Authority	15	25.0

Characteristics	Category	Frequency (n)	Percentages (%)
Parenting	Permissive	22	36.7
	Abandonment	14	23.3
Nutritional Knowledge	Good	0	0.0
	Moderate	8	13.3
	Less	52	86.7

2. Bivariate Analysis

Table 2 shows that in 22 respondents who had a specific parenting style, most respondents had children with the short stunting category, which was 77.3%. In 14 respondents with neglected parenting, almost all respondents had children with very short stunting categories, which was 78.6%. Then from the results of statistical tests using Spearman's Rho obtained ($\rho < 0.001$), it can be concluded that there is a significant relationship between parenting style to the incidence of stunting in toddlers aged 24-60 months in the Ketang Puskesmas area. The correlation coefficient value $r = -0.55$ which means, the relationship of parenting style to the incidence of stunting in toddlers aged 24 to 60 months in the Ketang Puskesmas area correlates negatively with a fairly strong relationship. This means that the better the parenting, the lower the incidence of stunting and vice versa.

Table 2 shows that of 52 respondents who had a pattern of food consumption, most respondents had children with a short stunting category, which was 78.8%. While of 8 respondents with moderate food consumption patterns, 7 respondents (87.5%) had children with very short stunting categories. Then from the results of statistical tests using Spearman's Rho obtained ($\rho = 0.001$) it can be concluded that H_a is accepted, which means that there is a relationship between food consumption patterns and the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area. The correlation coefficient value of -0.49 shows that there is a strong negative correlation between food consumption patterns and the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area. This means that the fewer food consumption patterns, the higher the incidence of stunting in toddlers and vice versa.

Table 2. The results of a bivariate analysis of the relationship between parenting and eating patterns on the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area

Variables	Stunting				OR	p
	Severely-stunted		Stunted			
	N	%	N	%		
Parenting						
Democratic	0	0.0	9	100.0	0.71	<0.001
Authority	2	13.3	13	86.7		
Permissive	5	22.7	17	77.3		
Abandonment	11	78.6	3	21.4		
Nutritional Knowledge						
Good	0	0.0	0	0.0	0.50	<0.001
Moderate	7	87.5	1	12.5		
Less	11	21.2	41	78.8		

3. Multivariate Analysis

Table 3 shows the results of multivariate analysis using a logistic regression test. Parenting has a significant partial relationship with the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area. Children who have mothers with poor parenting are 0.15 times more likely to experience stunting than children who have mothers with good

parenting (OR=0.15; 95%CI= 0.05 to 0.49; p=0.001). Nutritional knowledge has a significant and partial relationship with the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area. Children with mothers with less nutritional knowledge are 0.04 times more likely to be stunted than children with mothers with good nutritional knowledge (OR= 0.04; 95% CI= 0.00 to 0.53; p= 0.015).

Table 3. The results of multiple logistic regression tests on the relationship between parenting and knowledge of the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area

Variables	OR	95 % CI		p
		Lower Limit	Upper Limit	
Parenting	0.15	0.05	0.49	0.001
Nutritional Knowledge	0.04	0.00	0.53	0.015

DISCUSSION

Based on the results of this study, it is known that respondents have the most permissive parenting or pampering as much as (36.7%). A mother's parenting style is the mother's behavior in caring for or caring for her child. There are empathy types of parenting known to be written about in the scientific literature, but three of them have negative effects on mental and physical health. The types of eating styles are authoritarian parenting, permissive or indulgent parenting, abandonment or abandonment parenting, and authoritative or democratic parenting. Democratic parenting is where parents actively encourage children to eat without using commands and provide guidance to children in terms of eating. Authoritarian parenting is when parents give high demands on eating, and command children to eat but do not guide children in terms of eating. Permissive parenting is when parents give few demands to eat but not in the form of commands and give children the freedom to choose food. Neglect

parenting is a parenting style characterized by low parental involvement and low supervision of children about eating behavior. Mothers with secondary education spoil their children more than mothers with higher education. A mother's education and parenting experience influence her willingness to be the right parent. Parents with high economies tend to facilitate their children more, and these facilities will affect the child's personality. While parents with low economic status tend to be harsher to children and want to teach children to be grateful for the limited facilities available (Nazmi, et al., 2020)

In this study, parents were more likely to spoil children and let children do whatever they wanted without close supervision from parents. Mothers do not want their children to cry and whine, so mothers give in more often so that children calm down. Some respondents also had a neglectful parenting style where parental involvement and supervision of the child's diet were very low. Mothers often let children go out

to play without asking the child to eat first. This is due to the lack of knowledge of mothers related to parenting, especially in terms of feeding children. Lack of knowledge and low income levels cause a lack of maternal responsiveness regarding variations in food menus and food processing methods that cause children to get bored easily with the same food menu, so children are more interested in consuming snacks and some children more often choose to eat at the homes of neighbors or closest family.

This research is in line with the research of Christiana et al., (2020) which shows that mother's parenting is mostly in the permissive category of as many as 20 respondents (62%). In contrast, the research of Pribadi et al. (2022) shows that the parenting style of mothers in feeding toddlers is the most neglectful parenting style of 20 respondents (39.2%). However, this study shows that the education level of mothers has more elementary school education, which is 24 people (47.1%) and the low family income level is less than Rp. 500,000 per month. Research by Faresta et al., (2022) said that mothers who have stunting children are predominantly around 20-35 years old.

1. Overview of Stunting Incidence

Based on the results of this study, it is known that respondents have the most stunted children with short category (stunted). The role of health workers in handling the problem of stunting in toddlers in the Ketang Health Center area is quite good. From community health centers through integrated service post activities such as immunization activities, and demonstrations of nutritious food, as well as during home visits to monitor the growth and development of toddlers. However, there are still many children who are stunted. This is because stunting toddlers with a level of parental education is mostly

elementary education, so the ability to receive information from health workers is lacking, and the a lack of knowledge about local food processing that is nutritious and beneficial for toddler health. In addition, all respondents also have low-income levels that affect purchasing power related to nutritious food sources.

Stunting according to the Ministry of Health (Kemenkes) is children under five with a z-score of less than -2 SD/standard deviation (stunted) and less than -3 SD (severely stunted) (TNP2K, 2017). According to the Ministry of Village Development of Disadvantaged Regions, malnutrition occurs when the baby is in the womb and the early days of the child's birth, but stunting only appears after the child is 2 years old. Nutritional intake (diet) is one of the direct causes of stunting. Lack of food intake is caused by the unavailability of food at the household level, so no food can be consumed (Hayanna, 2022). Economic status also affects the incidence of stunting. Less economic status can mean that purchasing power is also low so the ability to buy good foodstuffs is also low. The quality and quantity of food that is lacking causes children's nutritional needs not to be met Adriani (2012). The level of education also affects the incidence of stunting in children. Highly educated parents will be better at processing information and learning to acquire knowledge so that later it will be closely related to the insight of knowledge related to nutritional issues. Parents with low levels of education have difficulty receiving new knowledge about nutritional status. The mother's incomprehension about what food should be given to the child every day makes the child's height unable to increase due to a lack of balanced nutritional intake (Sevriani, 2022).

This research is in line with research by Hayati et al., (2019) which shows that there is a relationship between family eco-

conomic status and the incidence of stunting in toddlers ($p=0.041$). Economic factors that affect nutritional status start from the level of education that affects the type of work then the type of work will affect income. In line with Nasution and Susilawati's (2022) research which states that the risk factors of mothers who do not complete basic education influence the incidence of stunting. Toddlers with mothers who did not complete primary education had a risk of stunting 1.67 times compared to mothers who completed high school.

2. The relationship between parenting style and the incidence of stunting in toddlers aged 24 to 60 months

The results of this study show a relationship between parenting and the incidence of stunting in toddlers aged 24 to 60 months in the Ketang Health Center area. From the results of this study, it is known that most respondents have a separative parenting style with children in the short category (stunted), and respondents with neglectful parenting have children in a very short category (severe stunted). The value of the correlation coefficient ($r=-0.55$) is meaningful, the relationship between parenting style and the incidence of stunting has a negative correlation with a fairly strong relationship. This means that the better the parenting, the lower the incidence of stunting and vice versa.

Parenting practices or parenting styles for toddlers can be the main cause of stunting. Factors of poor parenting can cause problems in children's growth and development. This is because mothers do not understand the correct parenting methods, especially related to feeding children. Permissive parenting is a parenting pattern where parents tend not to care and give various freedoms to children. Parents often relent and give everything that children want, so that all thoughts, opinions,

and considerations of parents tend to be ignored by children (Gharib and Rasheed, 2011). Neglectful parenting characterized by low parental involvement and supervision of children about eating behavior is also low. Good eating habits depend heavily on the mother's knowledge and skills on how to arrange food and persuade children to eat. Inadequate childcare, especially food security and child health, can be one of the factors that lead children to suffer from malnutrition.

The results of this study are in line with research by Fatolah (2020) which shows that there is a significant relationship between eating parenting and the incidence of stunting in children aged 24-59 months in the work area of the South Cimahi Leuwigajah Health Center with ($p= 0.003$). The results of this study are also in line with the research of Pribadi et al. (2020) which shows that there is a significant relationship between parenting in feeding and the incidence of stunting in toddlers aged 2 to 5 years in Mekarjaya Village, Banjaran District, Bandung Regency ($p < 0.001$).

3. The relationship of nutritional knowledge to the incidence of stunting in toddlers aged 24 to 60 months

The results of this study show that there is a relationship between nutritional knowledge and the incidence of stunting in toddlers aged 24-60 months in the Ketang Health Center area. Based on the results of this study, it is known that most respondents with nutritional knowledge, have children with short categories (stunted). While respondents with sufficient nutritional knowledge, have children with very short categories (severe-stunted). The correlation coefficient value of -0.49 shows that there is a strong negative correlation between nutritional knowledge and the incidence of stunting. This means that the less nutritional

knowledge, the higher the incidence of stunting in toddlers and vice versa.

Good knowledge about nutrition in mothers plays an important role in the child's growth and development process because food contains many nutrients. Inadequate nutritional intake of children can also inhibit their growth, resulting in thin bodies and malnutrition (Barasi, (2011). Knowledge of good nutrition will affect the consumption pattern of foods that have complete nutritional content such as carbohydrates, proteins (animal and vegetable), vegetables, vitamins, and minerals (Allo et al., 2013). People in general tend to consume foods that are only considered delicious and filling. Balanced nutritional intake must be met from various foods consumed because no food has perfect nutrition so there needs to be a diversity of food consumed by Arisman (2010).

According to Arni (2015), family income is one of the important factors in determining the quality of family food. The higher the family's income, the family's nutritional adequacy increases, with higher income, the greater the level of ability to buy food. However, the ability to buy does not guarantee being able to choose food according to good quality and quantity, so it needs to be based on high education because high income if not based on higher education will not produce adequate nutrition in family members. Lack of parental knowledge about nutrition results in a low budget for food expenditure and poor food quality and diversity.

This research is in line with research (Nazmi et al., 2020). who said that there is a relationship between nutritional knowledge and the incidence of stunting in the working area of the Peureumeu Health Center, ($p < 0.001$). Another study conducted by Sevriani (2022) also shows that there is a significant relationship between parenting in feeding

and the incidence of stunting in toddlers in Jamberejo Village, Kedungadem District, Bojonegoro Regency, with a significant degree value ($p=0.001$). The value of the correlation coefficient ($r=0.80$), means that the relationship between maternal parenting in feeding and the incidence of stunting in toddlers has high closeness.

4. The relationship between parenting and nutritional knowledge on the incidence of stunting in toddlers aged 24 to 60 months

The results of this study show that parenting has a relationship with the incidence of stunting by 15% ($OR= 0.15$) and food consumption patterns have a relationship of 4% ($OR= 0.04$). Based on this study, it is known that the variable most related to the incidence of stunting is parenting. This shows that the better the parenting, the lower the incidence of stunting.

The cause of stunting problems is not only caused by poor maternal parenting but also food consumption that is less than needed, according to (Nazmi et al., 2020). If a household has good nutritional knowledge and maternal parenting, it can form toddlers with good nutritional status as well. This good parenting will direct children to develop into adults with a good lifestyle. Thus, knowledge of nutrition and the mother's parenting is essential to forming a healthy toddler and free from stunting.

According to the Directorate of Non-communicable Disease Prevention and Control in 2018, three things must be considered in preventing stunting, namely improvements to eating consumption patterns, parenting, and improving sanitation and access to clean water. This shows that good nutritional intake needs to be supported by the mother's ability to provide good care for her children. Good food consumption patterns do not guarantee children have good nutritional adequacy as well. This

must be accompanied by how the parenting style is applied by the mother, especially in terms of feeding the child.

This research is in line with the research of Widyarningsih et al. (2018) which shows that, from the parenting style carried out by mothers, the percentage of stunted toddlers who have less eating (51.2%) is more when compared to stunted toddlers who have a good diet. As many as 85.4% of stunted toddlers have a diet that is not diverse. The results of the chi-square test showed that there was a significant relationship between birth length, dietary parenting, and food diversity with the incidence of stunting ($p \leq 0.050$).

The mother's parenting style greatly determines the child's eating habits. Mothers who understand how to take care of good feeding will also understand the consumption of good food for children. The availability of adequate food in the household does not guarantee that children have good food intake. Mothers play an important role in processing, preparing, and providing food that contains balanced nutrition. This depends on how the parenting style is applied by the mother, especially in terms of feeding the child. Health counseling on good parenting patterns, especially in feeding children, and balanced nutritional intake and nutritious food processing practices using local food ingredients are very important to be given. This aims to increase mothers' knowledge and awareness regarding good balanced nutrition through health programs organized by the government, to prevent and reduce the incidence of stunting.

AUTHOR CONTRIBUTION

In carrying out this research, the author contributed to conducting research to explore in depth the relationship between

parenting and management with the incidence of stunting.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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