

## The Influence of Sociodemographics and Maternal Parenting Patterns on the Incidence of Stunting in Toddlers Aged 6-23 Months

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### Article Info

#### Keywords:

Sociodemographics, parenting patterns and stunting.

### ABSTRACT

Stunting (dwarfism) is a condition in which a toddler has a length or height that is less than minus two standard deviations of the median of the WHO child growth standards. Stunting is caused by insufficient nutritional intake over a long period of time due to feeding that does not meet nutritional needs. Stunting can occur from when the fetus is still in the womb and only becomes apparent when the child is two years old. This type of research is quantitative with a case-control study design, which is an analytical study (survey) concerning how risk factors are studied using a retrospective approach. The case population in this study were all stunted children aged 6-23 months in the Mompang Community Health Center working area. The control population in this study were non-stunted children aged 6-23 months in the North Panyabungan Community Health Center area who lived side by side with stunted children. The sampling technique for this study was accidental sampling, namely a method of sampling by chance encounter. The findings obtained by the researchers are largely supported by the results of previous studies that stated there is a relationship between sociodemographics and maternal parenting patterns on the incidence of stunting. Parents' education and income are important factors in fulfilling toddlers' nutritional needs, and parental parenting patterns are also supporting factors in providing care for better toddler growth and development.

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### INTRODUCTION

Toddlerhood is one of the most important periods for a child's survival and growth and development. This period is one of the most important periods for laying the foundations for a child's health and intellectual development for their future life.

Indonesia, like other developing countries, has several nutritional problems in toddlers, including wasting, anemia, low birth weight and stunting. Stunting is a condition of growth

failure in toddlers due to chronic malnutrition so that the child is too short for his age. Malnutrition occurs since the baby is in the womb and in the early period after the baby is born, however, the condition of stunting only appears after the baby is 2 years old. Short toddlers (stunted) and very short (severely stunted) are toddlers with body length (PB / U) or height (TB / U) according to their age compared to the WHO-MGRS (Multicenter Growth Reference Study) 2006 standard. While the definition of stunting according to the Ministry of Health (Kemenkes) is a toddler with a Z-score of less than -2SD / Standard deviation (stunted) and less than -3SD (severely stunted) (TNP2K, 2017). In 2017, 22.2% or around 150.8 million toddlers in the world experienced stunting. However, this figure has decreased compared to the stunting rate in 2000, which was 32.6%. In 2017, more than half of the world's stunted toddlers were from Asia (55%), while more than a third (39%) lived in Africa. Of the 83.6 million stunted toddlers in Asia, the largest proportion came from South Asia (58.7%) and the smallest proportion from Central Asia (0.9%). (Ministry of Health Data Center 2018).

The World Health Organization (WHO) ranked Indonesia as the third country with the highest stunting prevalence rate in Southeast Asia in 2017, reaching 36.4 percent. The prevalence of stunting in Indonesia is still higher compared to other countries in Southeast Asia, such as Bangladesh (36.1%), Nigeria (35.8%), Bhutan (31.6%), Myanmar (29.2%), North Korea (22.9%), Maldives (20.3%), Sri Lanka (17.3%), and Thailand (10%). (Pusdatin Ministry of Health of the Republic of Indonesia 2018)

The 2018 Basic Health Research (Riskesmas) determined that the national stunting prevalence reached 37.2%, decreasing in 2018 to 30.8%. The decline in stunting rates in Indonesia is good news, but it does not mean that we can be calm, because if we refer to WHO standards, the maximum limit is 20% or one-fifth of the total number of children under five. (Riskesmas 2018).

According to WHO, the prevalence of short toddlers becomes a public health problem if the prevalence is 30% or more. The period 0-24 months is a period that determines the quality of life so it is called the golden period. Negative impacts can be caused by nutritional problems in 1000 HPK, one of which is stunting. The highest prevalence of stunting occurs in children aged 24-59 months. The process of becoming short or stunting in children in a poor area or region begins at around 6 months of life and continues until the age of 18 years. Stunting occurs in the first 36 months of life and is usually accompanied by long-term effects. (Bunga Astria, 2024)

The short-term impact of stunting is impaired brain development, intelligence, impaired physical growth and metabolism. While the long-term or adult impact is decreased cognitive abilities and learning achievement, decreased immunity so that it is easy to get sick. Stunting in children also causes vulnerability to diseases, both infectious and non-infectious diseases (NCDs), as well as making work quality uncompetitive, resulting in low economic productivity. Children with stunting do not experience maximum growth potential and can become stunted adolescents and adults which results in long-term losses for the Indonesian economy. (Bunga Astria, 2024)

According to research conducted by Nur Afia Amin (2024), it was found that there are various factors related to the incidence of stunting. Sociodemographic factors include low income, low parental education, number of family members, and economic factors in the household

are also indirectly related to the incidence of stunting. Income will affect the fulfillment of family nutrition and opportunities to participate in formal education. Low education accompanied by low nutritional knowledge is often associated with the incidence of malnutrition.

According to research conducted by Eko Setiawan (2018), it was found that there was a significant relationship between the level of energy intake, duration of illness, birth weight, maternal education level, and family income level with the incidence of stunting in children aged 24-59 months in the working area of Andalas Health Center, Padang Timur District, Padang City. The maternal education level factor had the most dominant relationship. The level of protein intake, frequency of illness, exclusive breastfeeding status, completeness of basic immunization status, level of maternal knowledge about nutrition, and number of household members did not show a significant relationship with the incidence of stunting.

According to research by Aridiah et al (2015), the results of the study show that factors that influence the occurrence of stunting in toddlers in rural and urban areas are maternal education, family income, maternal knowledge about nutrition, exclusive breastfeeding, age of complementary feeding, ZINK adequacy level, iron adequacy level, history of infectious diseases, and genetic factors from parents, but maternal employment status, number of family members, immunization status, energy adequacy level, and LBW status do not influence the occurrence of stunting.

According to research by Nur Afia Amin (2024), the results of the study showed that the prevalence of stunting in toddlers aged 6-23 months in Sedayu District was 16.20%. It is known that from the total number of toddler respondents, stunting was more common in the male group (52.38%) than in the female group (47.62%).

Based on data obtained from the Riau Provincial Health Office as of December 2, 2024, the stunting rate in Riau reached 33,637 toddlers. There are several districts where the percentage has increased, namely Rokan Hilir Regency in 2018 by 27.3 percent rising to 38.1 percent in 2018 and Bengkalis Regency in 2018 from 26.9 percent rising to 32.3 percent in 2018. (Riau Health Office 2018)

Based on data obtained in the Mompang Community Health Center work area, the number of stunting in 2024 was 285 people (16.61%). The results of interviews with 5 mothers who have toddlers who came to the integrated health post in the Mompang Community Health Center work area found 3 mothers whose toddlers were stunted, two mothers said their husband's income was only around 900,000-1,200,000 per month with a family of 5-6 people with a mother's education of junior high school graduates. Another mother who has a stunted toddler said she only graduated from elementary school and came from a poor family with a family of 5 people.

## METHODS

### Stunting

Stunting is a condition in which a toddler's length or height is less than their age. This condition is measured by a length or height greater than minus two standard deviations from the median of the WHO child growth standards. Stunting is caused by prolonged inadequate nutritional intake due to inadequate feeding. Stunting can occur while still in the womb and

only become apparent when the child is two years old. (Ministry of Health of the Republic of Indonesia, 2018).

### **Lack of Access to Clean Water and Sanitation**

Data obtained in the field shows that 1 in 5 households in Indonesia still defecate in the open, and 1 in 3 households do not have access to clean drinking water. Several causes as explained above have contributed to the still high prevalence of stunting in Indonesia and therefore a comprehensive intervention plan is needed to reduce the prevalence of stunting in Indonesia (TNP2K 2017).

### **Stunting Classification**

Stunting is defined as a condition in toddlers where the height for age is below minus 2 Standard Deviations ( $<-2SD$ ) from the WHO median standard. The most common assessment of toddler nutritional status is through anthropometric assessment. In general, anthropometry is related to various measurements of body dimensions and body composition at various ages and nutritional levels. Anthropometry is used to see the imbalance of protein and energy intake. Some anthropometric indices that are often used are weight for age (BW/A), height for age (H/A), weight for height (BW/H) which are expressed as a standard deviation of Z units (Z-score) where the results of anthropometric measurements show a Z-score of less than  $-2SD$  to  $-3SD$  (short/stunted) and less than  $-3SD$  (very short/stunted) (Ministry of Health of the Republic of Indonesia, 2018).

### **Mother's Parenting Pattern**

Grammatically, parenting consists of the words "patula" and "asuh." According to the General Indonesian Dictionary, "patula" means model, system, method, or form (a fixed structure), while "asuh" means to look after, care for, and educate children so they can stand on their own two feet.

### **Primary Data**

Primary data is data obtained from the first source, either from individuals or individuals by means of direct observation of the criteria owned by individuals as stunted children carried out by researchers. The method of collecting primary data is by direct observation of sociodemographic independent variables (father's and mother's education, number of family members, father's and mother's employment status, income, father's and mother's height, mother's knowledge of nutrition) and mother's parenting patterns), and dependent variables (stunted children).

### **Bivariate Analysis**

To find out the relationship between the dependent variable and the independent variable, simple statistics are used with the help of computerization using the chi square test. Decision making is whether there is a relationship or not at the 95% confidence level ( $\alpha = 0.05$ ). Furthermore, the conclusion is drawn if the p value  $<0.05$  then  $H_a$  is accepted  $H_0$  is rejected which indicates there is a significant relationship between the dependent variable and the independent variable, and if the p value  $> 0.05$  then  $H_a$  is rejected  $H_0$  is accepted which

indicates there is no significant relationship between the dependent variable and the independent variable. To find out how big the risk of the independent variable is on the dependent variable, the Odds Ratio (OR) value must be known.

## RESULTS AND DISCUSSION

### Sociodemographics on Stunting Incidence

The results of the study showed that the majority of fathers' education was low, namely 58 (74.4%), mothers' education was low, namely 68 (87.2%), the number of family members >4 people was 60 (76.9%), father's employment status was working, namely 56 (71.8%), mother's employment status was not working, namely 52 (66.7%), family income <Rp.1,850,000, -, namely 55 (70.5%), father's height <160 cm, namely 45 (57.7%), mother's height <150 cm, namely 53 (67.9%), and mother's knowledge was low, namely 53 (67.9%). Data related to sociodemographics and stunting incidence are shown in table 1.

**Table 1.** Frequency Distribution and Percentage of Sociodemographic Data on Stunting Incidence in Toddlers Aged 6-23 Months in the Working Area of Mompang Community Health Center, Mandailing Natal Regency in 2025 (N=78)

Characteristics	Respondents	
	f	%
Father's Education		
Low	58	74.4
Tall	20	25.6
Mother's Education		
Low	68	87.2
Tall	10	12.8
Number of Family Members		
>4 People	60	76.9
≤4 People	18	23.1
Father's Employment Status		
Doesn't work	22	28.2
Work	56	71.8
Mother's Employment Status		
Doesn't work	52	66.7
Work	26	33.3
Family Income		
<Rp.1,850,000	55	70.5
≥Rp. 1,850,000	23	29.5
Father's Height		
<160 cm	45	57.7
≥160 cm	33	42.3
Mother's Height		
<150 cmh	53	67.9
≥150 cm	25	32.1
Mother's Knowledge		
Low	53	67.9
Tall	25	32.1

### Sociodemographics Against Stunting Incidence

The results of the study showed that the majority of fathers' education was high, namely 53 (67.9%), mothers' education was high, namely 43 (55.1%), the number of family members <4 people was 45 (57.7%), fathers' employment status was working, namely 71 (91.0%), mothers' employment status was working, namely 49 (62.8%), family income >Rp. 1,850,000, -, namely 54 (69.2%), fathers' height >160 cm, namely 60 (76.9%), mothers' height >150 cm, namely 50 (64.1%), and mothers' knowledge was high, namely 45 (57.7%). Data related to sociodemographics regarding the incidence of stunting are shown in table 2.

**Table 2.** Frequency Distribution and Percentage of Sociodemographic Data on the Incidence of Non-Stunting in Toddlers Aged 6-23 Months in the Working Area of Mompang Community Health Center, Mandailing Natal Regency in 2025 (N=78)

Characteristics	Respondents	
	f	%
Father's Education		
Low	25	32.1
Tall	53	67.9
Mother's Education		
Low	35	44.9
Tall	43	55.1
Number of Family Members		
>4 People	33	42.3
≤4 People	45	57.7
Father's Employment Status		
Doesn't work	7	9.0
Work	71	91.0
Mother's Employment Status		
Doesn't work	29	37.2
Work	49	62.8
Family Income		
<Rp.1,850,000	24	30.8
≥Rp. 1,850,000	54	69.2
Father's Height		
<160 cm	18	23.1
≥160 cm	60	76.9
Mother's Height		
<150 cm	28	35.9
≥150 cm	50	64.1
Mother's Knowledge		
Low	33	42.3
Tall	45	57.7

### The Influence of Sociodemographics on Stunting

The results of the study showed that there was a sociodemographic influence (father's and mother's education, number of family members, father's and mother's employment status, income, father's and mother's height, mother's knowledge of nutrition) on the incidence of stunting in toddlers aged 6-23 months, which was proven by the results of statistical tests using the chi square test and looking at the Odds Ratio (OR) value which showed a significant relationship. The results showed that father's education and mother's education (parents) influenced the incidence of stunting in toddlers ( $P = 0.000$ ,  $OR = 6.148$ ;  $P = 0.000$ ,  $OR = 8.354$ ). Education will influence the knowledge and mindset of parents to provide care and fulfill nutrition for toddlers. According to Biswas & Bose (2010) father's education and mother's education are the strongest predictors of stunting in toddlers. According to Rahayu & Khaiyati (2024) maternal education will affect the incidence of stunting in children aged 6-23 months and will be at 5.1 times greater risk of having stunted children. Maternal education influences the high incidence of stunting (Thomas, John, & Helena, 1991). Maternal formal education has a long-term influence on the nutritional status of children through nutritional information (Webb & Block 2004). According to Nashikhah (2012) low education accompanied by low nutritional knowledge is often associated with the incidence of malnutrition.

The results of the study showed that the number of family members influenced the incidence of stunting in toddlers ( $P=0.000$ ,  $OR=4.545$ ). Increasing the number of family members will affect the need for food sources within the family. According to Chaudhury (2012), a large number of family members can result in a decrease in food for each child and an uneven distribution of food, resulting in malnutrition in toddlers within the family.

Father's employment status, mother's employment status, and family income affect the incidence of stunting in toddlers ( $P = 0.002$ ,  $OR = 3.985$ ;  $P = 0.000$ ,  $OR = 3.379$ ;  $P = 0.000$ ,  $OR = 5.380$ ). Parental employment status and family income will affect the fulfillment of food sources for toddlers. Parents who do not have jobs and lack of income will cause the inability to provide nutritious food in fulfilling nutrition. According to Nashikhah (2012) income can affect the fulfillment of family nutrition. Ni'mah & Muniroh (2015) stated that poor families will affect the occurrence of stunting in children. According to Azwar (2000) income factors have a large role in nutritional issues and family eating habits, especially depending on the family's ability to buy the food needed by the family. Children who come from poor families will cause malnutrition, namely stunting (Mendez & Adair, 1999).

### **The Influence of Mother's Parenting Style on Stunting**

The results of the study showed that there was an influence of maternal parenting patterns on the incidence of stunting in toddlers aged 6-23 months, which was proven by the results of statistical tests using the chi square test and looking at the Odds Ratio (OR) value which showed a significant relationship, namely ( $P = 0.000$ ,  $OR = 8.635$ ). Maternal parenting patterns have a role in the incidence of stunting in toddlers because food intake in toddlers is completely regulated by their mothers. Mothers with good parenting patterns will tend to have toddlers with better nutritional status than mothers with poor parenting patterns. According to Virdani (2012) mothers with good parenting patterns will tend to have children with good nutritional status as well, and vice versa, mothers with poor nutritional parenting patterns tend to have children with poor nutritional status as well. Maternal parenting

patterns are the behavior of a mother in caring for toddlers, and maternal behavior in caring for toddlers will have a close relationship with the incidence of stunting. Behavior itself according to Notoatmodjo (2005) is influenced by attitudes and knowledge. Good knowledge will create good attitudes, which in turn, if these attitudes are deemed appropriate, will lead to good behavior. According to Ricci & Becker (2006), stunting indicates a health problem that will increase the risk of morbidity and mortality, inhibit motor and mental development and function, and reduce physical capacity. Children with stunting will experience less than optimal growth potential.

### CONCLUSION

The results of the study showed that there was an influence of sociodemographics (father's and mother's education, number of family members, father's and mother's employment status, income, father's and mother's height, mother's knowledge of nutrition) and mother's parenting patterns on the incidence of stunting in toddlers aged 6-23 months, which was proven by the results of statistical tests using the chi square test and looking at the Odds Ratio (OR) value which showed a significant relationship, namely father's education ( $P = 0.000$ ), mother's education ( $P = 0.000$ ), number of family members ( $P = 0.000$ ), father's employment status ( $P = 0.002$ ), mother's employment status ( $P = 0.000$ ), income ( $P = 0.000$ ), father's height ( $P = 0.000$ ), mother's height ( $P = 0.000$ ), mother's knowledge of nutrition ( $P = 0.000$ ), and mother's parenting patterns ( $P = 0.000$ ). The findings obtained by researchers were largely supported by the results of previous studies which stated that there was a relationship between sociodemographics and mother's parenting patterns on the incidence of stunting. Parents' education and income are important factors in fulfilling toddlers' nutritional needs, and parental parenting patterns are also supporting factors in caring for better toddler growth and development.

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