

The Influence of Socio-economy and Local Food Diversity on Stunting in Toddlers

Pengaruh Sosial Ekonomi dan Keanekaragaman Makanan Lokal Terhadap Stunting pada balita

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Abstract

Objective: Stunting is still a big challenge faced by this nation even in the world even though it can actually be prevented. This study aims to determine the socio-economic relationship (mother's education, father's education, family income) to the incidence of stunting and to find out the phenomenon of providing local food diversity to toddlers with stunting.

Methods: The research design is a mixed method. The quantitative design used in this study is a cross-sectional approach, while the qualitative design uses an intrinsic case study design. The sample in this study was 100 toddlers. The sampling technique was purposive sampling. Data analysis in quantitative using chi square. Qualitative study using the study of phenomena with in-depth interviews.

Results: There was a significant relationship between mother's education ($p=0.003$) and father's education ($p=0.045$) and the incidence of stunting in toddlers, but there was no significant relationship between family income ($p=0.678$) and the incidence of stunting in toddlers. All respondents did not know how to process local wisdom-based food ingredients into nutrient-rich foods and did not provide a variety of foods to their children, and did not pay attention to the balanced nutritional content that was right for their children.

Conclusion: There is a need for structured and continuous education to increase public knowledge about stunting and how to provide a variety of foods.

Keywords: Knowledge, menstruation, personal hygiene, young women.

Article History	Submitted	Revised	Accepted
	2023-07-12	2023-07-18	2023-07-22

Introduction

Stunting describes chronic undernutrition during the growth and development period from the beginning of life. According to Sandjojo (2017) in the Village Pocket Book on Stunting Handling (2017), the causes of toddlers experiencing stunting are factors of malnutrition experienced by pregnant women and toddlers, lack of knowledge of mothers about health and nutrition before pregnancy, and after the mother gives birth, there are still limited quality health services including ANC-Ante Natal Care-, Post Natal Care and early learning, and there is still a lack of access to nutritious food.¹

The problem of stunting or the condition of failure to thrive in children under five so that their bodies are too short compared to children of their age is still a big challenge facing this nation. Based on the Global Nutrition Report in 2018, Indonesia's prevalence of stunting from 132 countries is ranked 108th, while in the Southeast Asia region, Indonesia's stunting prevalence is the second highest after Cambodia.² According to Basic Health Research (Riskesdas) data from the Ministry of Health, the national stunting rate has decreased from 37.2% in 2013 to 30.8% in 2018. According to the Indonesian Toddler Nutrition Status Survey (SSGBI) in 2019, this figure decreased to 27.7%. Reducing the stunting rate has been declared a national priority program. At present, the Government is continuing to move to organize the tools for accelerating stunting prevention and formulating the National Strategy (Stranas) for the Acceleration of Stunting Prevention for 2018-2024. The government, through the 2020-2024 National Medium-Term Development Plan (RPJMN), has also set a target for the national stunting rate to drop to 14%.³ An overview of the nutritional status of Banten Province Stunting is the main problem with a stunting prevalence of 37%, while the prevalence of undernutrition is 19.6% and undernutrition is 13.8%.⁴

Many factors cause children under five to experience stunting. Various studies have shown that there are several factors that are predictors of stunting. Broadly speaking, it can be concluded into 2 parts, namely maternal and family factors and the child's own factor. Maternal and family factors that cause stunting are low family income, more than 4 family members, low father and mother education, mother's knowledge, working mother, parenting style of nutrition, short mother's height, and lack of home sanitation hygiene.⁵⁻¹⁰ Meanwhile, child factors that can cause stunting are not getting exclusive breastfeeding, low birth weight babies (LBW), history of infectious diseases, low

nutritional intake (energy, protein, vitamin A, iron, zinc), complementary foods for breast milk (MP). breastfeeding), male sex, and incomplete immunization.^{11–13}

The condition of a short child's body is often said to be a hereditary (genetic) factor from both parents, so that many people just accept it without doing anything to prevent it. In fact, as we know, genetics is a determinant factor for health that has the least influence when compared to behavioral, environmental (social, economic, cultural, political) factors, and health services. In other words, stunting is a problem that can actually be prevented.¹⁴

Socioeconomic status is a combined measure of an individual's or family's economic and social position relative to other people, based on income and education. Socio-economic situation is a socio-cultural aspect that greatly influences health status and also influences disease patterns, such as malnutrition which is more common among people with low economic status. Socio-economic level affects the family's ability to meet the nutritional needs of toddlers, besides that socio-economic conditions also affect the selection of types of complementary foods and the time of feeding them as well as healthy living habits. This is very influential on the incidence of toddler stunting. Parental education can affect nutritional status, one of which is the incidence of stunting, this is influenced by the ability of each parent to access information about health services related to children's nutritional needs.^{15–18}

Infants and children in the first 2 years of life need very high macronutrients and micronutrients to help achieve rapid growth and development. MP-ASI which is given after the age of 6 months is intended so that the child can achieve optimal catch-up. The quality of the food provided is one of the determinants of stunting. Food diversity is one indicator that determines food quality. The more diverse the consumption of types of food, the better the nutritional status of children.¹⁹ The use of local food wisdom is good for treating stunting because it has no side effects, is cheap, easy to develop and has market value. In addition, research discussing local wisdom food is still relatively small and is an interesting research medium to carry out. Therefore, the authors are interested in analyzing the Influence of Socio-Economy and Provision of Local Wisdom-Based Food Diversity on Stunting in Toddlers in the Working Area of the Kramatwatu Health Center. This study aims to determine the socio-economic relationship (mother's

education, father's education, family income) to the incidence of stunting and to find out the phenomenon of providing local food diversity to toddlers with stunting.

Methods

The research design is a mixed method, namely quantitative and qualitative. Quantitative research to measure the relationship between mother's education, father's education and family income with stunting in toddlers. Meanwhile, the variable providing food diversity based on local wisdom uses a qualitative design. The quantitative design used in this study is a cross-sectional approach, while the qualitative design uses an intrinsic case study design. In an intrinsic case study, the researcher can select cases based on personal interest or interest in an issue. Referring to the variety of qualitative research, the type of research used is descriptive in nature. Qualitative methodology is research that produces descriptive data in the form of written or spoken words from people and observable behavior.²⁰

The population in this study were all toddlers in Pamengkang Village, Working Area of the Kramatwatu Health Center as of January 2023, totaling 450 toddlers. The sample in this study was 100 toddlers who experienced stunting and those who were not stunted. The sampling technique was purposive sampling. The sample is determined based on inclusion criteria, namely toddlers who are stunted and not stunted. There were 4 key informants for the qualitative research, consisting of 2 stunted mothers, 1 assistant midwife in the village (*kader*) and 1 village midwife. The dependent variable is stunting, while the independent variables are socio-economic (mother's education, father's education, family income) and the distribution of food diversity based on local wisdom.

This research was conducted in Pamengkang Village, Working Area of the Kramatwatu Health Center. This research was conducted from January to February 2023. The data used are primary and secondary data. Stunting variables for toddlers, mother's education, father's education, and family income use secondary data from the village. Meanwhile, the variable variety of food provision based on local wisdom uses primary data by conducting in-depth interviews with respondents using a research questionnaire.

Data analysis in quantitative research was univariate in the form of frequency, followed by bivariate analysis using chi square. While the analysis of qualitative research,

the data collected was analyzed through several stages, namely data reduction, data display and conclusion drawing/verification so that a conclusion can be drawn.²¹

This research has been funded by the Faletahan University Research and Community Service Institute with a contract number 005/SPK-L/LPPM-UF/I/2023.

Results

Quantitative research results

Table 1. Results of univariate data analysis (n=100)

Categories	Respondent Group	
	N	%
Stunting in toddlers		
Stunting	68	68
Not stunting	32	32
Mother's education		
Not attending school	11	11
Finished elementary school	41	41
Finished junior high school	35	35
Finished high school	12	12
Graduated college	1	1
Father's education	8	8
Not attending school	43	43
Finished elementary school	26	26
Finished junior high school	22	22
Finished high school	1	1
Graduated college	8	8
Family income		
Low (less than the regional minimum wage)	73	73
High (more than equal to the regional minimum wage)	27	27

The table above shows that most (68%) of toddlers are stunted, almost half (41%) of mothers have graduated from elementary school, almost half (43%) of fathers have graduated from elementary school, and most (73%) of respondents have low family income the regional minimum wage.

Table 2. Results of bivariate data analysis (n=100)

Variable	Stunting in toddlers		Total	P Value
	Yes	No		
Mother's education				
Low (Less than Junior High School)	28 (52,9%)	24 (47,1%)	52 (100,0%)	0,003
High (more than equal to Junior High School)	40 (83,3%)	8 (16,7%)	48 (100,0%)	0,003
Father's education				
Low (Less than Junior High School)	30 (58,8%)	21 (41,2%)	51 (100,0%)	0,045
High (more than equal to Junior High School)	38 (77,6%)	11 (22,4%)	49 (100,0%)	0,045
Family income				
Low (less than the regional minimum wage)	51 (69,9%)	22 (30,1%)	73 (100,0%)	0,678
High (more than equal to the regional minimum wage)	17 (63%)	10 (37%)	27 (100,0%)	0,678

Table 2 shows that the proportion of mothers with higher education more than equal to Junior High School) is greater in the group of toddlers who experience stunting (83.3%) compared to mothers with low education Less than Junior High School) (52.9%), fathers with higher education (more than equal to Junior High School) the proportion is greater in the group of toddlers who experience stunting (77.6%) compared to fathers with low education (less than Junior High School) (58.8%), respondents who have low family income (less than the regional minimum wage) the proportion is greater in the group of toddlers who experience stunting (69.9%) compared to respondents who have higher family income (more than equal to the regional minimum wage) (63%).

Based on the P value, it was stated that there was a significant relationship between mother's education ($p=0.003$) and father's education ($p=0.045$) with the incidence of stunting in toddlers, but there was no significant relationship between family income ($p=0.678$) with the incidence of stunting in toddlers.

Qualitative research results

Based on diagram 1, out of 62 respondents, 41 had positive personal hygiene behavior during menstruation (66.1%), while 21 respondents (33.9%) had negative personal hygiene behavior during menstruation.

Table 3. Characteristics of informants

No.	Initial Name	Age (Year)	Informant status	Level of education
1	L	28	Stunted toddler mother	Elementary School
2	S	31	Stunted toddler mother	Elementary School
3	M	35	Assistant midwife in the village (<i>kader</i>)	Elementary School
4	A	36	Village Midwife	Bachelor

There were 4 in-depth interview informants in this study consisting of 2 Stunted toddler mothers, 1 Assistant midwife in the village, 1 village midwife.

a. Provision of food based on local wisdom

Foodstuff based on local wisdom in Pamengkang Village is rice which is the largest commodity in Pamengkang Village and at the same time becomes the main food for the community. Apart from that, there are also bananas planted in the yards of residents' houses in Pamengkang Village. All respondents did not know how to process food based on local wisdom into nutrient-rich food.

"Yes, there are many who have rice fields, there is also a lot of rice. Most eaten normally with side dishes"

(M, 28 years)

"...mmmm..bananas..some people plant bananas in the yard. Yes, just eat it like that. Nothing else to do"

(S, 31 years)

"It seems that mothers who have toddlers here rarely give banana complementary foods. If you already eat rice, just eat rice and a side dish of tofu, tempeh"

(M, 35 years)

“It's rare for mothers who have babies and toddlers here, in Pamengkang Village, to provide additional food such as bananas or to process rice into other more nutritious foods. Here the toddlers like to have snacks. The child is given snacks only by his mother” (A, 36 years).

b. Food diversity

All mothers who have toddlers do not provide a variety of foods to their children, and do not pay attention to the right balanced nutritional content for their children.

“He (Child) only eat once a day...snack a lot...He only want to eat tempeh and he don't want to eat vegetables”

(M, 28 years)

"It's hard to eat..to be picky..The Child just want eat with eggs and soy sauce..The Child don't want to eat vegetables, it's really hard for her to eat them"

(S, 31 years)

Discussion

Mother's education

One important factor influencing the incidence of stunting in Indonesia is the educational level of parents. If the education level of the father and mother is higher, then the child's risk of stunting will decrease by 3-5%.²² The educational level of parents is one of the influential factors in the nutritional status of the family. Parents who are more educated have the possibility of understanding healthy lifestyles and knowing how to keep their bodies fit. This can be reflected in the attitude of parents in adopting a healthy lifestyle which includes eating nutritious foods.²³

Mother's education is an important factor that influences children's height.²⁴ This theory is in line with research conducted by Rachman (2021) which shows that there is a relationship between the risk of stunting in toddlers and factors of parents' education level. One of the various factors that increase the risk of having an effect on the increased risk of stunting in children under five years old in Indonesia is the level of education of parents.¹⁶

Mother's education level is very important in reducing malnutrition in children compared to father's education level. This theory is supported by research conducted by Nurmaliza and Herlina (2019) which states that mothers with higher levels of education

tend to have children with good nutritional status, namely 73.2% compared to mothers with low levels of education tend to be 3 times at risk of having children with poor nutritional status.²⁵

Based on this research, it can be concluded that in Indonesia women/mothers play an important role in fulfilling family nutrition. The role of a mother is very important in the health and growth of children. Mothers who have a higher level of education tend to have an impact on mother's behavior in fulfilling children's nutritional status. Adoption of a positive attitude towards the family's diet is expected as a result of the mother's high education level. Applying a positive attitude will help in meeting the nutritional needs of the family. Mother's education level also influences the way they capture and absorb information related to nutrition and child health.¹⁶

Father's education

This study is in accordance with research conducted by Soekatri, Sandjaja and Syauby which proved that among stunted children (HAZ <-2 SD), the HAZ score was significantly higher at the educational level of parents (fathers and mothers) who higher. This is further proven by the fact that the HAZ score will decrease even more if the education of both parents is only equivalent to that of a high school graduate (SMA).²²

The results of this study are in line with research conducted by Ngaisyah which states that there is a significant relationship between father's education and the incidence of stunting. This situation is in line with the theory that parents who have higher education will be more oriented towards preventive action, know more about health problems, and have better health status. According to the theory, it is explained that the level of education also determines whether or not it is easy for someone to absorb and understand nutrition and health knowledge. This is closely related to knowledge about nutritional sources and types of food that are good for family consumption. This condition causes parents to be less than optimal in meeting the nutritional needs of children, causing children to experience stunting. Parents' educational level is also related to awareness of utilizing health facilities.¹⁵

Family Income

Parents' occupation has a big contribution in nutritional problems. Parents' occupation is closely related to family income which affects family purchasing power. Families with limited income are more likely to be unable to meet family food needs in

terms of quality and quantity. An increase in family income can affect the arrangement of food. Spending more on food does not guarantee more variety in one's food consumption. Adequate family income will support the growth and development of children because parents can provide all the needs of children, both primary and secondary needs.²⁶

This is in accordance with the opinion of Ngaisyah (2015) that increased income will increase the opportunity to buy food with better quality and quantity, whereas a decrease in income will cause a decrease in the purchasing power of food, both in quality and quantity. If the family income increases, the provision of side dishes will increase in quality. On the other hand, low income causes low purchasing power, so that they are unable to buy the required amount of food. High income, which is not matched by sufficient knowledge of nutrition, will cause a person to become very consumptive in his daily diet, so that the selection of a food ingredient is based more on taste considerations than on nutritional aspects.¹⁵

A state that is not stunted occurs when the body gets enough nutrients to be used efficiently, thus enabling physical growth, brain growth, work ability and general health at the highest possible level. Malnutrition occurs when the body experiences a deficiency of one or more of the more essential substances. Malnutrition is influenced by nutritional fulfillment, infectious diseases in children, poor hygiene, demographic/residential location can have an impact on individual nutritional status. So that it can cause stunting, while nutrition is a very important requirement in helping the process of growth and development in infants and children, considering the benefits of nutrition in the body can help the process of growth and development of children, and prevent the occurrence of various diseases due to malnutrition in the body. Fulfillment of nutritional needs in children is expected that children can grow rapidly according to their growing age and can improve quality of life and prevent morbidity and mortality.¹⁵

Other studies have found that family income is the most dominant factor in influencing the occurrence of stunting, where families who earn lower income than the regional minimum wage have a probability 6.625 times higher than other toddlers to suffer from stunting.²⁷ Studies in Bangladesh found age, gender, geographic distribution, and family income play an important role in the incidence of stunting. Meanwhile, parental education is a significant predictor of stunting in children.²⁸ Income level is a

measure of family economic status. Low levels of income can result in decreased family purchasing power. Income sufficient to meet family needs is generally obtained from working family members or from own sources of income such as benefits and pensions. Low-income families have a prevalence of illness, weakness, chronicity of the disease and limited activities due to health problems. The problem of poverty is likely to cause nutritional conditions to worsen.²⁹

Diversity local food

Food consumption is a vital component that has an important role in determining the nutritional status of children. One of the indicators of the quality of children's consumption is determined based on the diversity of food. Diverse food can be defined as the various types of food consumed, both among food groups consisting of staple foods, side dishes, vegetables and fruits. There is no single type of food that has all the nutrients the body needs to support growth and efforts to maintain health. Therefore a variety of foods is very important to meet all the nutritional components needed by the body. Dietary diversity is a proxy indicator for determining the quality of consumption used in assessing the adequacy of macronutrient and micronutrient intakes for children. Fulfillment of balanced nutrition through a variety of types of food as an indicator in achieving optimal nutritional status and as an effort to prevent stunting in the future.¹⁹

The use of local food wisdom is a good thing for treating stunting because it has no side effects, is cheap, easy to develop and has a sale value. Food consumption is a vital component that has an important role in determining the nutritional status of children. One of the indicators of the quality of children's consumption is determined based on the diversity of food. Diverse food can be defined as the various types of food consumed, both among food groups consisting of staple foods, side dishes, vegetables and fruits. There is no single type of food that has all the nutrients the body needs to support growth and efforts to maintain health. Therefore a variety of foods is very important to meet all the nutritional components needed by the body. Dietary diversity is a proxy indicator for determining the quality of consumption used in assessing the adequacy of macronutrient and micronutrient intakes for children. Fulfillment of balanced nutrition through a variety of types of food as an indicator in achieving optimal nutritional status and as an effort to prevent stunting in the future³⁰

The high diversity of food reflects the quality of a good diet and the fulfillment of the Adequacy of Nutritional Adequacy Rate (RDA) is also good. The low diversity of food given to children will certainly affect their nutritional status.³¹ All of the stunted toddler respondents did not receive additional food made from local ingredients. This is in line with research conducted by Irwan (2020) which states that providing supplementary food based on local wisdom is very effective in improving the nutritional status of toddlers who experience stunting and malnutrition, besides that the basic ingredients for making PMT are easy to obtain.³²

Additional food given to toddlers is very important to help meet their nutritional needs so that they can support the process of growth and development of toddlers. Provision of additional food for toddlers with poor nutritional status can be obtained from basic ingredients of tubers such as purple sweet potato which can be used as a variety of snacks and staple foods.³³ Purple sweet potato contains anthocyanin, fiber, starch content, reducing sugar, protein, vitamin C, vitamin A, and iron. Sweet potato which is rich in fiber, protein, minerals and an almost balanced composition of amino acids should be used as a basic ingredient or raw material in food production. Ambon bananas contain energy, protein, dietary fiber, carbohydrates, calcium, magnesium, vitamin A, vitamin B6, vitamin C, sodium, potassium, phosphorus, iron and zinc. Moringa leaves are also one of the additional foods that contain many benefits with nutritional content of vitamin C 7 times more than citrus fruits, vitamin A 10 times more than carrots, calcium 17 times more than milk, protein 9 times more than yogurt, 15 times more potassium than bananas, and 25 times more iron than spinach, while vitamin B3 is 50 times more than nuts. The benefits of Moringa leaves besides being able to increase the weight of malnourished children, can also increase breast milk.³³

Conclusion

This study gave the results that there was a relationship between mother's education and father's education on stunting in toddlers, but there was no relationship between family income and stunting in toddlers. Provision of supplementary food for toddlers with undernourished status, but all respondents did not know how to process local wisdom-based food ingredients into nutrient-rich foods and did not provide a variety of foods to their children, and did not pay attention to the balanced nutritional content that

was right for their children. So that there is a need for structured and continuous education to increase public knowledge about stunting and how to provide a variety of foods.

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