

Relationship of Mothers' Parenting and Stunting in Toddlers Aged 12-36 Months in Bogor Regency, West Java Province, Indonesia in 2019

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Abstract

Background: Stunting is a nutritional problem in toddlers who experience growth failure due to long-term malnutrition so that the z-score is less than -2SD / standard deviation (stunted) and less than - 3SD (severely stunted). According to the 2016 Global Nutrition Report, the prevalence of stunting in Indonesia shows that Indonesia ranks 108 out of 132 countries. Based on previous reports, Indonesia is included in 17 countries that experience problems with nutrition, both excess and malnutrition. For the Southeast Asian region, the prevalence of stunting in Indonesia is the highest in the world, after Cambodia. In addition to nutritional factors, stunting is also caused by indirect factors, namely parenting. Therefore the aim of the study is to assess the relationship between mothers' parenting and stunting in toddlers aged 12-36 months in Bogor Regency, West Java Province, Indonesia in 2019.

Method: Cross-sectional study design from primary data with a total sample of 500 toddlers aged 12-36 months taken in Bogor Regency, West Java Province, Indonesia in 2019. Stunting status was assessed based on the TB / U indicator <-2 z-score, while categorizing variables Mothers' parenting was done scoring. Analysis of the relationship between mothers' parenting with stunting in this study using multivariate cox regression analysis and the magnitude of the effect expressed in the prevalence ratio (PR) with confident interval (CI: 95%.)

Results: This study shows the prevalence of stunting in toddlers aged 12-36 months in Bogor Regency in 2019 of 39.2%. The result of cox regression test of the relationship between mothers' parenting and stunting showed PR 1.47 (95% CI: 1.09-1.97) meaning that mothers with poor parenting had a prevalence of stunting toddlers 1.47 times higher than mothers with good parenting after controlling for the variable "Mothers' Education".

Conclusion: Mothers' parenting is one of the factors that causes the high prevalence of stunting in toddlers aged 12-36 months in Bogor Regency, West Java Province, Indonesia in 2019. The efforts to prevent stunting are very important, one of which is based on mothers' parenting factors, therefore it needs to be increased education for expectant mothers, and especially adolescent girls as well as increasing knowledge of pregnant women who have low education about parenting in toddlers in accordance with aspects of parenting that are good and right. So that hopefully mothers have enough knowledge about parenting, and it can be applied during parenting.

Keywords: Stunting, Mothers' Parenting, 12-36 Months, Toddler, Bogor Regency

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Introduction

Nutritional status plays an important role in the development of a child's body weight or height which is strongly influenced by nutrition⁽¹⁾. Stunting is a situation

where children under the age of five fail to grow due to lack of chronic nutritional intake caused by long-term malnutrition so that the child's height does not match the age of the child or the child can be said too short when compared to his age⁽²⁾. According to the WHO Child Growth Standard, stunting is based on a body length index compared to age (PB/U) or height compared to age (TB/U) with a z-scoring limit of less than -2SD / standard deviation (stunted) and less than -3SD (severely stunted)⁽²⁾⁽³⁾.

In 2017, the world experienced 150.8 million stunting, or 22.2%. This figure has decreased when compared with the stunting rate in 2000 which was 32.6%. In 2017, more than half the stunting toddlers in the world came from Asia (55%) while more than a third (39%) lived in Africa. Of the 83.6 million stunting toddlers in Asia, the largest proportion came from Asia (58%) and the lowest proportion in Central Asia (0.9%)⁽⁴⁾. According to the 2016 Global Nutrition Report, the prevalence of stunting in Indonesia shows that Indonesia ranks 108 out of 132 countries. Based on previous reports, Indonesia is included in 17 countries that experience problems with nutrition, both excess and malnutrition⁽⁴⁾⁽⁵⁾. For the Southeast Asian region, the prevalence of stunting in Indonesia is the highest in the world, after Cambodia⁽⁴⁾⁽⁶⁾. Results of Basic Health Research (RISKESDAS) 2018 stunting prevalence fell to 30.8% from the previous 37.2% (2013)⁽²⁾. While for toddlers who have normal height increased to 57.8% (2018) from 48.6% (2013)⁽⁴⁾⁽²⁾. Even so, West Java Province is a province in Indonesia that still has a high prevalence of stunting, even a significant increase in cases from 25.1% in 2016 to 29.2% in 2017. Meanwhile the Districts in West Java with Stunting cases are still high, one of which is Bogor Regency 28.5%⁽⁷⁾.

Mothers' parenting plays an important role in the occurrence of growth disorders in children. To support good nutritional intake needs to be supported by the mothers' ability to provide good care for children in feeding practices, personal hygiene practices and the environment⁽⁸⁾. According to the United Nations Children's Fund (UNICEF) parenting is one of the indirect factors related to the nutritional status of children including stunting⁽¹⁰⁾⁽¹¹⁾. Mothers when caring for children with affection, spending time with children such as playing storytelling, teaching children discipline, giving praise or appreciation if the child succeeds in doing well, and implementing a clean and

healthy lifestyle (PHBS) can indirectly affect growth and development children⁽⁹⁾. This is because the pattern of parenting from the psychological side of the child is also one of the factors that play an important role in the growth and development of children under the age of five. At this age children are still very dependent on the parenting of their mothers⁽¹²⁾.

Venny research on factors related to stunting among toddlers aged 24-59 months in Wawatu Village, North Moramo District, South Konawe Regency in 2017 shows that out of 35 toddlers (100%) who have unfavorable mothers' parenting patterns there are 23 toddlers (65.7%) who experienced stunting and there were 12 toddlers (34.3%) who did not experience stunting (normal). Whereas out of 45 toddlers (100%) who have good mothers' parenting, there are 11 toddlers (24.4%) who experience stunting and 34 toddlers (75.6%) who do not experience stunting (normal). This shows that there is a relationship between mothers' parenting and stunting among toddlers aged 24-59 months in Wawatu Village, North Moramo District, South Konawe Regency, 2017⁽¹³⁾.

Based on the description above, the researcher is interested to see "The Relationship of Mothers' Parenting and Stunting in Toddlers Age 12-36 Months in Bogor Regency, West Java Indonesia in 2019".

Method

The research design used in the study is a cross-sectional study using primary data taken in Tamansari District, Bogor Regency in 2012. Tamansari District has the highest stunting prevalence in Bogor Regency. The target population in this study are all toddlers under the age of 12-36 months in Bogor Regency in 2019, where based on data from the Public Health Sector of the Bogor District Health Office in 2019 there were 10,447 toddlers. The selected sample is the inclusion criteria of all toddlers aged 12-36 months, living with parents, has complete data according to the variables to be studied and has lived for one year in the area of 500 samples, while the exclusion criteria are toddlers with abnormalities or defects that can hinder the process of anthropometric measurement and mothers who refuse to be interviewed. In the research, 111 posyandu (integrated service post) were sampled using the probability proportional to size method.

Data collection was carried out on 02 to 18 July

2019 using questionnaires by recruiting enumerators of Nutritionist and Epidemiology Masters Students who were trained in advance. The data that has been collected is edited by checking the instrument that has been filled in, encoding the data, then entering the data into the data processing system, and cleaning up the data by checking the completeness and correctness of the data.

The dependent variable is stunting while the independent variable is mothers' parenting with mothers' education, income, URI, diarrhea, number of children, protein intake and calorie intake covariate. Stunting data was obtained by measuring the length of a toddler aged 12-24 using the Length Measuring Board (LMB) and the height of a toddler over 25-36 months using microtoise. The age data is obtained by reading the birth certificate or the child MCH book. Other data were obtained by

filling in the questionnaire.

Data analysis was performed using the STATA 13 program. To determine stunting based on TB/U z-score value using WHO Anthro software, while categorizing data for Mothers' parenting variables the composite method was performed by scoring the questions from Mothers' parental variable from questionnaire, as well as for variables Other covariates are mothers' education, income, number of children, diarrheal disease, URI, protein intake and calorie intake. Analysis of the relationship between independent and dependent variables in this study was influenced by the prevalence ratio (PR) with a 95% confident interval (CI) using multivariate analysis of multivariate cox regression.

Results

Table 1. Frequency Distribution based on Research Characteristics in Bogor Regency, West Java Province in 2019

Variable	Frequency	Percentage
	n=500	%
Stunting		
Stunting	196	39.20
Normal	304	60.80
Mothers' Parenting		
Bad	277	55.40
Good	223	44.60
Mothers' Education		
Low (<12 years)	376	75.20
High (≥12 years)	124	24.80
Income		
<2 million	177	35.40
≥ 2 million	323	64.60
URI		
Yes	213	42.60
No	287	57.40
Diarrhea		
Yes	139	27.80
No	361	72.20

Cont... Table 1. Frequency Distribution based on Research Characteristics in Bogor Regency, West Java Province in 2019

Number of Children		
> 2 Children	111	22.20
≤ 2 Children	389	77.80
Protein Intake		
Poor	293	58.60
Satisfactory	207	41.40
Calorie Intake		
Poor	287	57.40
Satisfactory	213	42.60

Table 1 shows that toddlers in Taman Sari District of Bogor Regency in 2019 mostly had stunting problems which was 39.20%. The proportion of mothers’ parenting to toddlers with poor parenting is 55.40%. Mothers with low education have a greater proportion of 75.20%. While income ≥ 2 million has a greater proportion of

64.60%. The proportion of those who do not have URI is 57.40%, while the proportion of those who do not diarrhea was 72.20%. For the number of children ≤ 2 people have a greater proportion of 77.80%. In poor protein intake has a greater proportion of 58.60%, while poor calorie intake has a greater proportion of 57.40%.

Table 2. Relationship of Mothers’ Parenting and Stunting in Toddlers Age 12-36 Months in Bogor Regency, West Java Province in 2019

Mothers’ Parenting	Stunting Situation				Total	PR	95% CI	P-Value
	Stunting		Normal					
	n=500	%	n=500	%				
Bad	128	46.21	149	53.79	277			
Good	68	30.49	155	69.51	223	1.96	1.35-2.83	0.0003
Total	196	39.20	304	60.80	500			

Table 2 shows the results of the analysis of the relationship between mothers’ parenting with stunting obtained that there were 128 (46.21%) Mothers with poor parenting had stunted toddlers. While mothers with good parenting, there were 68 (30.49%) having stunted toddlers. Chi-Square test results obtained p = 0.0003,

it can be concluded that there is a difference in the proportion of stunting between mothers who have poor parenting and mothers who have good parenting means that there is a significant relationship between parenting mothers with stunting in toddlers Aged 12- 36 months in Bogor Regency, West Java Province in 2019. From

the analysis results also obtained PR 1.96, meaning that mothers with poor parenting have a prevalence of stunted toddlers 1.96 times higher than mothers with good parenting.

Table 3. Full Multivariate Initial Model

Stunting Prevalence Factors	PR	95% CI	P-Value
Mothers' Parenting	1.40	1.03-1.90	0.030
Mothers' Education	1.47	1.00-2.17	0.050
Income	1.30	0.97-1.74	0.078
URI	1.27	0.95-1.71	0.097
DIARRHEA	1.22	0.90-1.66	0.188
Number of Children	1.35	0.98-1.85	0.062
Protein Intake	0.79	0.52-1.18	0.250
Calorie Intake	1.05	0.70-1.56	0.807

Table 3 shows the results of the selection of all variables produce p value <0.25 , there are only two variables whose value > 0.25 , namely the variable protein intake and calorie intake. However, the two variables are still analyzed by multivariate because substantially protein intake and calorie intake are very important variables related to stunting status in toddlers.

Table 4. Final Multivariate Model

Stunting Risk Factors	PR	95% CI	P-Value
Mothers' Parenting	1.47	1.09-1.97	0.010
Mothers' Education	1.63	1.12-2.39	0.011

Table 4 shows the results of the final multivariate model. Where there are no variables that are confounding variables. This is due to the difference in PR crude and PR adjust which is still $<10\%$, but mothers' education is still included in the final model because in substance mothers' education is related to mothers' parenting. Cox regression test results obtained a PR value of 1.47 with 95% CI 1.09-1.97 meaning that mothers with poor parenting have a prevalence of stunted toddlers 1.47 times higher than mothers with good parenting after being controlled by the variable "Mothers' Education".

Discussion

The results of this study indicate that mothers'

parenting is one of the causes of stunting in toddlers aged 12-36 months in Bogor Regency in 2019 after being controlled by the mothers' education with a PR value of 1.47 (1.09-1.97). This is in line with research from Venny which shows that there is a significant relationship between mothers' parenting and stunting ($p = 0.001$)⁽¹³⁾.

Parenting is one of the indirect factors related to the nutritional status of children one of which is stunting⁽¹⁴⁾. Mothers with good parenting will tend to have toddlers with optimal growth⁽¹³⁾. Mothers with good parenting patterns are also related to mothers' education level⁽¹⁰⁾. Mothers with low levels of education are more difficult

to receive information than Mothers with high levels of education, causing mothers' knowledge to be lacking which can make mothers' parenting bad. This can affect the nutritional intake of toddlers to be not optimal⁽¹⁴⁾. It also affects the emotional and social development of children so that it can cause stunting in toddlers. Whereas the main principle in a positive parenting pattern other than optimal nutritional status is that children must be treated with appreciation, free from acts of violence, love and affection, and provide a comfortable and friendly environment for children's growth and development⁽⁹⁾.

Research from Irdawati and Dewati shows that there is a significant relationship between the level of knowledge and mothers' behavior in fulfilling nutritional needs and child health monitoring patterns⁽¹⁵⁾, and Taufiqurrahman's research shows that there is a significant relationship between the level of mother's knowledge about nutrition and parenting behavior in toddlers⁽¹⁾. Research from Judith and Stand in their study in Filipina concluded that mothers' education also affected the incidence of stunting⁽¹⁶⁾⁽¹⁷⁾. In line with this, Semba et al showed that mothers' education was a determinant of stunting in Indonesia and Bangladesh⁽¹⁸⁾⁽¹⁷⁾.

Conclusions

From the results of the analysis it can be concluded that the relationship between mother's parenting style and stunting status after being controlled by mothers' educational variables showed significant. Prevalence of stunting shows that nutritional problems in Indonesia are chronic problems that are directly related to factors, one of which is education and indirectly is mother's parenting. Therefore, the Health Office and the Local Health Services Unit need to make efforts to increase knowledge about positive parenting patterns for toddlers targeting pregnant women through routine socialization conducted with village midwives and posyandu (integrated service post) cadres. This effort is expected to be able to improve optimal parenting patterns in toddlers from before birth until the next life so they do not experience stunting.

Ethical Considerations: This study was approved by The Research and Community Engagement Ethical Committee Faculty of Public Health Indonesia University (Ket-560/UN2.F10/PPM.00.02/2019).

Competing Interests: The authors declared that no

competing interests exist.

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