

# Policy and Determinant Analysis in effort to Control stunting Case in Bengkulu Province

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## ABSTRACT

**Background:** The case of stunting in Bengkulu province is ranked sixteen highest in Indonesia. It has increased from 36% in 2007 to 40% in 2013. The purpose of the study is to know the dominant factors that influence the incidence of stunting in Bengkulu Province.

**Method:** The study design was Cross-sectional with multistage random sampling technique. The total samples analyzed in this study were 739 infants who attained the age of 6-24 months from the 2015 Nutrition Status Monitoring Survey in Bengkulu Province. Data included sex, birth weight, age of weaning, implementation of Early Breastfeeding Initiation, maternal age, maternal education, maternal occupation and Body Mass Index (BMI). The data were collected using questionnaires. Secondary data were analyzed using logistic regression.

**Result :** The study found 27,1 % stunting stunting and 56% male, normal birth weight 97.2%, age of weeding <2 years counted 64.7%, no early breastfeeding initiation ( 58,1%), mother's age  $\geq$  20 years old 93.2%, low education of mother 47.8%, unemployed mothers 72%, and abnormal BMI of mother 59.4%. Factors associated with the incidence of stunting are maternal work and education. Maternal employment is the dominant factor affecting the incident of stunting in Bengkulu Province. Toddlers with working mothers will be 1.47 times more likely to have stunting compared to toddlers with unemployed mothers.

**Conclusion :** The socialization of stunting to worker mothers is much needed. The work makes a woman spending more time outdoors so that attention to the child's dietary habit is reduced.

**Keywords:** *Stunting Determinant, Mother's job, Efforts to prevent stunting.*

## INTRODUCTION

Latest data of World Health Organization (WHO) revealed that Asia ranked as the first of stunting case in the world. About 86.5 million under five children in Asia underwent Stunting. The Southeast Asia was the second highest which was 15.1 million under five children after South Asia. It is estimated that there were 162 million short toddlers in 2012, if the trend continues without any reduction effort, it is projected to be 127 million in 2025. As many as 56% of short children live in Asia and 36% in Africa<sup>1</sup>.

The results of the Basic Health Research (Riskesdas) in 2013 showed that the national short prevalence in 2013 was 37.2%, which meant an increase compared to 2010

(35.6%) and 2007 (36.8%). The short prevalence of 37.2 percent consisted of very short 18.0 percent and 19.2 percent short<sup>2</sup>. Public health problems are considered severe when the prevalence of stunting was 30%-39% and it was serious if the prevalence was  $> 40\%$ <sup>3</sup>.

Stunting is more vulnerable to illness and into adolescence tends to be overweight and prone to non-communicable diseases<sup>4</sup>. Stunting children are widely accepted predictors of low-quality human resources, and decrease the productive capacity of a nation in the future<sup>5</sup>. In the Nutrition Review by UNICEF (2012) it was explained that interventions to lower stunting should start precisely before birth, with prenatal and maternal nutrition, and continue until the age of two<sup>5</sup>.

Bengkulu Province is in the sixteenth highest case of stunting in Indonesia It increased every year, 36% in 2007, 31.6% in 2010 and 40% in 2013. If it does not immediately followed up then the stunting case will increase continuously.

**MATERIAL AND METHOD**

A community based on cross-sectional study design was conducted in ten districts Bengkulu province (Bengkulu, Rejang Lebong, Lebong, North Bengkulu, Muko-Muko, Seluma, South Bengkulu, Kaur, Bengkulu Tengah, Kepahyang) from May to September, 2015. The population was mothers who had children 6-24 months. Multistage cluster sampling was used to select the study population. Eligible mothers were invited to interview

using questionnaires to gather data.

The total samples analyzed in this study were 739 toddlers who were 6-24 months. It was taken from the result of Nutrition Status Monitoring Survey in 2015, Bengkulu Province. Data covered sex, birth weight, age of weaning, implementation of Early Breastfeeding Initiation, maternal age, maternal education, maternal occupation and Body Mass Index. The data were collected using questionnaire. The data was analyzed using computer program. Chi-square test was used to compare the proportions. Multivariate multiple logistic regression analysis was used to determine the dominant factor of stunting. The level of statistical significance set up at  $p < 0.05$ .

**RESULT**

**Table 1: Characteristic of mother and under two year children can be seen.**

Variable	Category	Frequency	(%)
Stunting case	Normal	539	72.9
	Stunting	200	27.1
Gender	Male	414	56
	Female	325	44
Weight of Birth	Normal	718	97.2
	BBLR	21	2,8
Age of weaning	≥ 2 years old	261	35.3
	< 2 years old	478	64.7
Early Breastfeeding Initiation	Yes	310	41.9
	No	429	58,1
Maternal age	≥ 20 Tahun	689	93.2
	< 20 Tahun	50	6.8
Maternal Education	High	115	15.6
	Medium	272	36.8
	Low	352	47.8
Maternal Occupation	Employee	207	28
	Unemployed	532	72
Maternal Body Mass Index	Normal	300	40.6
	Abnormal	439	59.4

Based on table 1, There is toddler stunting (27,1%), males (56%), normal birth weight (97.2%), people of weaning age <2 years ( 64.7%), people who did not doing early breastfeeding initiation (58.1%), mothers with the age ≥20 year (93.2%), mothers with low education (47.8%), unemployed mothers (72%), and abnormal body mass index of mothers (59.4%).

**Factors Related to stunting**

The result of bivariate analysis using chi-square test to see the relationship of sex, birth weight, age of weaning,

initiation of early breastfeeding, mother age, education, occupation and body mass index with Stunting can be seen in table 2 as follows

**Table 2: Factors associated with the incidence of stunting in Bengkulu Province**

Research variables	Category	stunting Case				total		p value
		normal		stunting		n	%	
		n	%	n	%			
Gender	Male	302	72.9	112	27.1	414	100	1.000
	Female	237	72.9	88	27.1	325	100	
Weight Birth	Normal	525	73.1	193	26.9	718	100	0.684
	BBLR	14	66.7	7	33.3	21	100	
Weaning age	≥ 2 Tahun	193	73.9	68	26.1	261	100	0.711
	< 2 Tahun	346	72.4	132	27.6	478	100	
Early breastfeeding initiation	Yes	219	70.6	91	29.4	310	100	0.268
	No	320	74.6	109	25.4	429	100	
Maternal age	≥ 20 Tahun	503	73	186	27	689	100	1.000
	< 20 Tahun	36	72	14	28	50	100	
Maternal education	High	92	80	23	20	115	100	0.042
	Medium	204	75	68	25	352	100	
	Low	243	69	109	31	352	100	
Maternal occupation	Employee	142	68.6	65	31.4	207	100	0.018
	Unemployed	397	74.6	135	25.3	53	100	
Maternal body mass index	Normal	220	73.3	80	26.7	300	100	0.907
	Abnormal	319	72.7	120	27.3	439	100	

Based on the bivariate analysis, there was no correlation among gender, weight birth, weaning age, early breastfeeding initiation, maternal age, and BMI toward the stunting case. But there was a correlation between maternal education and maternal occupation with the stunting case.

### Multivariate Analysis

Multivariate analysis had done to see which one was the dominant factor that affected stunting. Since having done the multivariate analysis, the result can we see in table 3.

**Table 3: Multivariate analysis of stunting case in Bengkulu province**

Analysis steps	B	P	oR	95% CI
Step 1				
Maternal education	0.314	0.082	1.369	0.961–1.951
Maternal occupation	0.389	0.020	1.476	1.064–2.047
Constant	-1.667	0.000	0.189	

Table 3, showed that the most dominant factors were the maternal education and occupation. The under five children with employee mothers would be at risk of stunting 1.476 times compared to the under five children with unemployed mothers. Thus, the toddlers with maternal low education background would be at risk of stunting 1.369 times compared to the toddlers with medium and high education background of mothers.

## DISCUSSION

### Factors Affecting Stunting

The results showed that education is a factor affecting the incidence of stunting in Bengkulu Province. The results of this study were consistent with the Shine study (2017) that it showed the prevalence of stunting in children aged 6-59 months which determinant were gender, maternal age, maternal education, maternal occupation, income, postnatal care visit, first milk given, bottle milk feeding<sup>6</sup>. Seedhoom (2014) showed the results that factors affecting stunting were low birth weight, short stature, mother education, lack of knowledge of mother about nutrition<sup>7</sup>. According to Senbajo (2011) the main factor affecting stunting in Abeokuta, Nigeria was mother education. It was an important factor in child growth<sup>8</sup>. Higher maternal education will improve the mother's behavior in seeking information about family health and use of health services thereby reducing the incidence of stunting.

Semba (2008), stated that there is a strong relationship between the two variables<sup>9</sup>. Nzala (2011) showed that factors associated with the incidence of stunting were gender and low maternal education<sup>10</sup>. The most dominant factors affecting the incidence of stunting were gender, maternal employment status, family history of TB, antenatal care visits, parental illiteracy, home density, mass media, and water availability<sup>11</sup>. Wealth index, maternal exposure to mass media, child age, child size at birth, and parental education related to stunting<sup>12</sup>.

According to Paudel (2012), several stunting-related factors in Nepal, including socioeconomic status, environmental factors, exclusive breastfeeding, supplementary food intake, food diversity and diarrheal diseases<sup>13</sup>. Exclusive breastfeeding, socioeconomic and infant with LBW were factors related to the cause of stunting in Nepal<sup>14</sup>. This was also reinforced by the results of the Susanti study (2015) which showed the consumption of maternal food during pregnancy,

exclusive breastfeeding, additional feeding history, infectious disease, nutrition, immunization and family economic factors were the contributing factors in stunting case in Papua<sup>15</sup>.

Some of the determinants were age, sex, socioeconomic status, and four main findings. The findings were (1) 2-year-olds were predictable stunting, (2) children who were introduced food too early can increase underweight, (3) vaccine and immunization of infectious diseases can be a protective factor of stunting case, and (4) live with non-biological parents could increase the stunting case<sup>16</sup>. The factors that mediate the immediate causes of stunting events were: insecurity household food, inadequate health care and dietary patterns and unhealthy household and environmental conditions (low income, poor sanitation and hygiene behavior). But the basic causes of this stunting event were education, and socio-political issues of economics<sup>4</sup>.

### Policy of Controlling Stunting

Provincial and district/municipal governments have intervened to prevent/reduce the number of under five children with stunting through the program: 1) Fulfill the nutritional needs for pregnant women. Pregnant women should get adequate nutritional food, nutritional supplementation (iron substance or fe), and monitor their health; 2) Exclusive breastfeeding (ASI) until the age of 6 months and after 6 months of age are given Complementary foods of exclusive breastfeeding with sufficient quantity and quality; 3) monitoring the growth of under five children in "posyandu" is a very strategic effort to detect early growth disorder; 4) increasing access to clean water and sanitation facilities, and maintaining cleanliness of the environment; 5) provide a breast milk corner at work.

Approach to prevent stunting such as micronutrient supplements for pregnant women and children (especially iron, zinc, calcium, and folate); increased availability of enriched fats Commercial products such as Nutributter and Plumpy'nut; encouraging breastfeeding during the first six months of life; and efforts to improve the complementary nutritional quality for baby food when weaned<sup>17</sup>. Continuous exposure to human and animal waste can lead to chronic bacterial infections. These infections caused by poor sanitation and hygiene practices. Those made the nutrition difficult to absorb by the body. One study found that Bangladeshi children

with access to drinking of clean water, healthy toilets, and facilities for hand washing with soap increased 50% in height for age scores compared with controls of children who did not expose the access<sup>18</sup>. Similar results emerged from a study in Sudan<sup>19</sup>. Children living with poor hygiene became dwarfed by frequent chronic diarrhea. The authors revealed a strong link between growth disturbance and diarrhea of five or more episodes in the first two years of life<sup>20</sup>.

Government's policy by instructing all workplaces to provide premises for breastfeeding mothers, in an effort to improve infant health and control stunting for infants and children in the future. The American Academy of Pediatrics policy supports the publication of the benefits of breastfeeding for infants, mothers, and communities although the economic, cultural and political pressures often confound decisions about infant feeding. Breastfeeding ensures optimal achievement for the health, growth, and development of infants and children<sup>21</sup>. Beside of that, the overall level of breastfeeding initiation got near to Healthy Community Goals, both the level and duration of exclusive breastfeeding. Furthermore, the concepts and recommendations of Annual Summit on Breastfeeding are to familiarize policy makers, non-governmental organizations, media representatives, business leaders and the like with health needs communities to urge for breastfeeding support<sup>22</sup>. A special place for breastfeeding for working mothers is absolutely necessary for the healthy growth and smart children.

## CONCLUSION

In Bengkulu province found 27.1% of stunting. The result of analysis showed the stunting case appeared because of the parents' education and occupation. The occupation was the most dominant factor. Employed parents should continuously give their attention to the dietary habit and healthy of the children. The government's policy was appropriate as the effort to prevent stunting through nutrition fulfillment of pregnancy women, exclusive maternal breastfeeding, additional nourishment of maternal breastfeeding, controlling the toddlers' growth at "posyandu", increasing access to the clean water and sanitation facilities, as well as keeping the environment clean and providing area for maternal breastfeeding at working places.

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