

# FACTORS ASSOCIATED WITH PREVENTIVE EFFORTS OF STUNTING IN CHILDREN AGED 2-3 YEARS IN KEDIRI, EAST JAVA

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## ABSTRACT

**Background:** Short toddlers or stunting was a condition where a person has a shorter height compared to the height of people of the same age in general. Factors that may cause stunting include poor parenting practice, lack of maternal knowledge about health and nutrition, mother giving birth, limited health services. This study aimed to analyze the effect of maternal behavior during pregnancy, education level, and socioeconomic status on stunting prevention effort.

**Subjects and Method:** This was a cross-sectional study design. The research was conducted in the village of Bangkok, Gurah District, Kediri Regency, East Java. The study population were 72 mothers who had toddlers aged 2-3 years. The dependent variable was stunting. The independent included maternal behavior, education, and family income. The data were collected by questionnaires, then analyzed using logistic regression analysis model.

**Results:** Prevention of stunting in children increased with good maternal behavior (OR= 2.55; 95% CI= 1.20 to 3.89;  $p < 0.001$ ) and high maternal education (OR= 1.25; 95% CI= 0.27 to 2.22;  $p = 0.012$ ). The relationship between prevention of stunting and family income was statistically non-significant (OR= -0.44; 95% CI= -1.90 to 1.02;  $p = 0.551$ ).

**Conclusion:** Prevention of stunting in children increases with good maternal behavior and high maternal education.

**Keywords:** behavior during pregnancy, level of education, socioeconomic status, stunting prevention

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## BACKGROUND

Stunting is a condition where nutritional intake is lacking for a long time due to feeding that does not follow needs, leading to chronic malnutrition (DHO) (2015). Stunting occurs due to chronic malnutrition in the first 1000 days of life, resulting in tense children's development. The golden period of the first 1000 days of life is irreplaceable. The nutritional needs of children must be met, children's behaviour can develop optimally, and

brain development will occur rapidly (Tihono et al., 2015). The prevalence of very short toddlers tends to decrease from 18.8% in 2017 to 17.1% in 2010 and again to 19.2 in 2013. Tihono et al. (2015) Indonesia is ranked fifth in the world for the number of children with stunting conditions, where more than a third of children are under five years old (MCA Indonesia, 2013). Stunting can cause the quality of human resources, which are assets and investments of a more

advanced nation, to be hampered. The nation's productivity and competitiveness will also decrease (Kemenkes RI, 2013). Stunting prevention behaviour that is not resolved will cause short-term impacts, namely increased mortality and morbidity and long-term, decreased learning achievement, capacity and work productivity (WHO, 2014a). A mother's education level and family income are significantly related to stunting in toddlers (Ni'mah and Nadhiroh, 2015).

Stunting is a condition where a person has a shorter height than the height of people of the same age in general (Village Pocket Book in Handling Stunting 2017). The prevalence of stunting under-five children under five in East Java in 2013 reached 35.8% (Risksedas, 2013). Meanwhile, the prevalence of stunting under five in Kediri in 2013 was 35.07% (UNICEF, 2013). Children who experience stunting will reduce the child's chances of survival and hinder the child's optimal health, growth and development, which has long-term harmful consequences for cognitive abilities, school performance, and the child's future (WHO, 2014b). According to the World Health Organization (WHO), stunting prevention efforts can start from a young age. Young women can begin to be given knowledge and understanding about the importance of fulfilling nutrition as a teenager. Fulfilment of nutrition during adolescence can prevent malnutrition during pregnancy. Adequate nutrition during pregnancy can prevent stunted growth in the fetus (Ministry of Health, 2017).

Stunting is caused by multidimensional factors and is not only caused by poor nutrition experienced by pregnant women and children under five. Some of the factors that cause stunting include poor parenting practices, including a lack of maternal knowledge about health and nutrition before and during pregnancy and after the mother gives birth. Limited health services including Antenatal Care (ANC) or health services for mothers during pregnancy, Postnatal Care (PNC) and quality early learning, Lack of access for households/ families to nutritious food, lack of access to clean water and sanitation (Ariani, 2017). The World Health Organization determines that if the prevalence of stunting is between 30%-39%, the area is experiencing severe problems. If the prevalence is more than 40%, the area is experiencing severe problems. Stunting is a measure of the body length or height of toddlers, including short (stunted) or very short (severely stunted) when compared to the standard in their age group compared to the standard (Simbolong et al., 2019). Based on the problems that occurred, a study was conducted to analyze the influence of pregnant women's behaviour, education level, and socioeconomic status on stunting prevention efforts.

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## **SUBJECTS AND METHOD**

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### **1. Study Design**

A cross-sectional study was conducted at Bangkok Village, Gurah District, Kediri Regency, East Java.

## 2. Population and Sample

The study population were 72 mothers who had toddlers aged 2-3 years.

## 3. Study Variables

The dependent variable was stunting. The independent included maternal behavior, education, and family income.

## 4. Operational Definition of Variables

### a. Stunting

Definition: a condition of failure to thrive in children as a result of chronic malnutrition that occurs since the baby is in the womb until the age of 2 years so that the child is too short for his age

Measurement scale: Ordinal

### b. Mother's behaviour

Definition: Actions taken by the mother from early pregnancy to delivery related to stunting

Measurement scale: categorical

### c. Mother's education

Definition: Last length of formal schooling

Measurement scale: categorical

### d. Family income

Definition: The condition of parents as measured by the income earned each month

Measurement scale: categorical

## e. Knowledge

Definition: Knowledge is the result of knowing, and this occurs after a person has sensed an object.

Measurement scale: categorical

## 5. Study Instruments

The data were collected by questionnaires.

## 6. Data Analysis

The data were analyzed using logistic regression analysis model.

## 7. Research Ethics

This research was submitted to the Ethics Committee of Karya Husada Kediri's Stikes for ethical testing. This research has an ethical impact on research subjects: a sense of discomfort when filling out questionnaire. To overcome this impact, the research subjects were previously given information about research that will be carried out following human principles.

## RESULTS

The study results are described in the form of sample characteristics, bivariate analysis, and multivariate analysis in the form of logistic regression models.

**Table 1. Sample Characteristics**

Characteristics	Category	Frequency	Percentage
Knowledge	Low knowledge	5	6.9
	Moderate	56	77.8
	High	11	15.3
Behaviour	Poor	4	5.6
	Moderate	55	76.4
	Good	13	18.1
Education	Elementary school	9	12.5
	Junior high school	33	45.8
	Senior high school	25	34.7
	College	5	6.9
Income	Less than 1 million	44	61.1
	More than 1 million	28	38.9

**Table 2. Bivariate Analysis**

Variables	Prevention of Stunting						p
	Kurang		Cukup		Baik		
	N	%	N	%	N	%	
<b>Knowledge</b>							
Low knowledge	1	20.00	2	40.00	2	40.00	0.008
Moderate	8	14.30	45	80.4	3	5.4	
Hih	0	0.00	4	36.40	7	63.60	
<b>Behaviour</b>							
Poor	2	40.00	3	60.00	0	0.00	<0.001
Moderate	6	12.5	40	83.3	2	4.2	
Good	1	5.3	8	42.1	10	52.6	
<b>Education</b>							
Elementary school	3	44.40	4	33.30	2	22.20	<0.001
Junior high school	3	9.10	30	23.40	0	0.00	
Senior high school	2	8.00	18	72.00	5	20.00	
College	0	0.00	0	0.00	5	100.00	
<b>Income</b>							
less than 1 million	7	15.90	31	70.50	6	13.60	0.361
more than 1 million	2	7.10	20	71.40	6	21.40	

**Table 3. Logistic Regression Analysis**

Variables	OR	95% CI		p
		Lower limit	Upper limit	
Knowledge	1.45	1.03	4.26	0.011
Behaviour	2.55	1.20	3.89	<0.001
Education	1.25	0.27	2.22	0.012
Income	-0.44	-1.90	1.01	0.551
N observation= 72				
-2 log likelihood= 63.42				
Nagelkerke R <sup>2</sup> = 0.45				

Based on the logistic regression model, it was stated that good knowledge increased stunting prevention efforts 1.45 times (OR= 1.45; 95%CI= 1.03 to 4.26; p= 0.011). Good behavior increased stunting prevention efforts 2.55 times (OR=2.55; 95%CI= 1.20 to 3.89; p<0.001). Higher education increased stunting prevention efforts 1.25 times (OR= 1.25; 95%CI= 0.27 to 2.22; p= 0.012). Income of more than 1 million reduces stunting prevention efforts by -0.44 (OR= -0.44; 95%CI= -1.90 to 1.01; p=0.551).

## DISCUSSION

### 1. Relationship of behaviour during pregnancy with stunting prevention

Based on the results of the study, it showed that the behaviour of the respondents was less than four respondents (5.6%), 55 people (76.4%), well behaved 13 people (18.1%). Human behaviour is all activities that can be observed directly or cannot be observed by outsiders. Good behaviour will, of course, also affect stunting prevention. Many behaviours must be changed in people's lives today. Positive behaviour in the health sector will

impact children's growth and development. As we know today, stunting is suffered by many children in Indonesia, one of which is due to poor behaviour during pregnancy, the behaviour itself has many factors that influence it, but the involvement of health workers as the front line in health development is currently significant—remembering that children are assets of the nation that we should protect and preserve. Healthy living behaviour today must be encouraged in order to build a prosperous and healthy Indonesia, in order to create a stunting-free Indonesia. The study results are described in sample characteristics, bivariate analysis, and multivariate analysis in the form of logistic regression models.

## **2. The relationship between respondents' education and stunting prevention**

Based on the results of the study, the respondents' education showed that nine respondents had elementary education (5.6%), 33 people had junior high school education (45.8%), 25 high school graduates (34.7%), five people had higher education (6.9%). Education is an effort to foster and develop the human personality, either spiritually or physically. Some experts interpret education as a process of changing the attitudes and behaviour of a person or group of people in maturing through teaching and training. With education, we can be more mature because education has a very positive impact on us. Also, education can eradicate illiteracy and will provide skills, mental abilities, and so on. Education also has an important influence on stunting prevention efforts.

There are many reasons why a woman must have high education, none other than because women as child caregivers are required to have high education to take care of their children well. Women who are highly educated are demanded to be able to provide a good education for their children so that Indonesian children are free from stunting.

## **3. Relationship between respondents' income and stunting prevention**

Based on the study results, respondents' incomes were 44 (61.1%), less than 1 million people, and 28 people (28.9%). Income is the maximum value that a person can consume in a period by expecting the same conditions at the end of the period as the original state. This understanding focuses on the total quantitative expenditure on consumption during a period. It is expected that the more income, the better the quality of human life. High income will make people tend to be able to improve their health status. This will positively impact stunting prevention, where the important factor of stunting is food or nutrition—the better the economic status, the better the health.

Prevention of stunting in children increases with good maternal behaviour and high maternal education.

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### **AUTHOR CONTRIBUTION**

All researchers contributed in the process of writing articles.

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#### **CONFLICT OF INTEREST**

There is no conflict of interest in this research.

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