

# Parental Smoking Behavior With Stunting Incidents in East Nusa Tenggara, Indonesia

Jayanthi Petronela Janggu<sup>1</sup>, Ronaldus Asto Dadut<sup>2</sup>, Makrina Sedista Manggul<sup>1</sup>, Silfia Angela Halu<sup>1</sup>, Nur Dafiq<sup>1</sup>, Maria Sriana Banul<sup>1</sup>, Tarsianus Golo<sup>1</sup>  
{yeni.janggu@gmail.com}

<sup>1</sup>Universitas Katolik Indonesia Santu Paulus Ruteng, Indonesia

<sup>2</sup>Public health Center Bondo Kodi, Sumba Barat Daya, Indonesia

**Abstract.** Nutrition is one of the aspects that might have a direct impact on a child's development and growth. Children's nutritional intake is still low, which has an impact on growth and development. Stunting is the undernutrition issue on which the government is primarily focused. This research aimed to determine the association between parental smoking behaviour and the prevalence of stunting in children between the ages of 24-59 months. This study employs a descriptive correlation research approach and is a quantitative study. This study's methodology is cross-sectional. A questionnaire on smoking behaviour and one about stunting served as the research instrument. The findings show a relationship between parental smoking behaviour and the incidence of stunting  $p = 0.00$  ( $p < 0.00$ ) which indicates a relationship between smoking behaviour and the incidence of stunting with a correlation value of 0.378 which means that *parental smoking behaviour variable* with the incidence of stunting in toddlers aged 24-59 months has a strong correlation. Thus, parental smoking behaviour will have a direct and indirect impact.

**Keywords:** parental smoking behaviour, stunting, toddlers

## 1 Introduction

Nutrition is one of the aspects that might have a direct impact on a child's development and growth. Children are still getting less nutritious intake, which impacts their growth and development. The government's priority for undernutrition is stunting and malnutrition. The rate of stunting in toddlers has reduced from 27.7% to 24.4% [1].

To meet the aim of lowering stunting among children under the age of five by 2024, this must reach 14%; of course, this is a target that must be achieved. This problem is highly concerning since stunted children are substantially more likely to face growth and development barriers, resulting in low school performance and productivity and a higher risk of non-communicable diseases in adulthood [2]. The pandemic heightens the danger of nutritional problems.

According to Basic Health Research, East Nusa Tenggara has the highest stunting rate in Indonesia, at 42.6%. This statistic is significantly above the national average of 30.8%. East Nusa Tenggara is one of the provinces in Indonesia with a scale prevalence that is still high enough to make it a priority target for the treatment of stunting concerns. East Nusa Tenggara,

comprising the Southwest Sumba Regency, was identified as a priority area for minimizing stunting rates [3].

The Bondo Kodi Health Center in Southwest Sumba 2021 got the data from 164 children who encountered stunting in Bondo Kodi village, as many as 54 children. Stunting data for up to 20 children with an average birth weight of 2500-4000 grams were gathered by secondary and primary data collecting via questionnaires at the Bondo Kodi Health Center.

The study's findings suggest that inheritance only has a 15% influence, with dietary intake issues, growth hormonal problems, and the recurrence of infectious diseases representing the significant factors [4]. Environmental factors, such as pollution exposure from cigarette smoke, also impact a child's growth. The carbon monoxide and benzene in cigarettes can affect the bone marrow and reduce the number of red blood cells, which increases the risk of anaemia [5]. Reducing the number of nutrients reaching cells, tissues, and glands, particularly those that supply thyroid and growth hormones, is one of the effects of anaemia. These two hormones have a significant impact on the incidence of stunting. The intervention aims to minimize cigarette usage in the home through nutrition-aware family education to accelerate the decrease of stunting [6].

## **2 Method and Materials**

### **2.1 Study Design**

This study employs a descriptive correlation research design, a type of quantitative research. Finding the correlation between various variables is the goal of correlational research. Cross-sectional research, which is the method used in this study, strongly emphasises the observation of data for both independent and dependent variables.

### **2.2 Population and Sample**

All children between the ages of 24-59 months were represented in the study's working area at the Bondo Kodi Public Health Center in Southwest Sumba—a total of 164 children in the population. One hundred sixty-two parents made up the study's representative sample. Parents of children under five who had no communication problems and were willing to participate in the study were eligible. Purposive sampling, a non-probability sampling technique, was employed in this study. The sampling strategy was chosen by choosing a sample from the population based on the researcher's criteria. There were 162 participants in the study's samples. The variables in this study were parental smoking behaviour as the independent variable and stunting incidents as the dependent variable.

### **2.3 Instruments and Analysis**

The instruments employed in this study were smoking behaviour and stunting questions. A frequency distribution can show a univariate examination of the obtained and collected data. The researcher employed the Spearman Rank correlation test to do a bivariate analysis of two variables that were suspected of being associated.

## **3 Results and Discussion**

**Table 1.** Frequency distribution of respondents' characteristics

<b>Variable</b>	<b>f</b>	<b>(%)</b>
Age		
<20	0	0
20-35	57	35
>35	105	65
Total	162	100
Employment		
government employees	20	12
Self-employed	30	19
Farmer	83	51
private employees	29	18
Total	162	100
Education		
No school	17	10
Primary school	29	18
Junior high school	26	16
Senior high school	71	44
Bachelor	19	12
Total	162	100
Knowledge		
Good knowledge	110	68
lack of knowledge	52	32
Total	162	100
Attitude		
Positive	110	68
Negative	52	32
Total	162	100

Sixty-five per cent of the responses, or 105 people, are older than 35. The percentage of farmers who responded is 83 (51%), senior high school graduates are 71 (44%), and knowledgeable respondents make up 110 (68%). The majority of respondents—110 persons, or 68%—have positive attitudes (Table 1).

**Table 2.** Frequency Distribution of Parents' Smoking Behavior with Stunting Incidence

<b>Variable</b>	<b>f</b>	<b>(%)</b>
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Smoking Behavior		
Light	10	6
Currently	60	37
Heavy	15	9
Do not Smoke	77	48
Total	162	100
Stunting Incident		
Stunting	54	33
No Stunting	108	67
Total	162	100

Of the total respondents, most of the smoking behaviour was 85 people consisting of 10 light smokers (6%), 60 moderate smokers (37%), and 15 heavy smokers (9%). While the incidence of stunting was 54 children under five (33%), and not stunting was 108 children (67%) (Table 2).

**Table 3.** Bivariate analysis of parents smoking behaviour with stunting incidence

Smoking Behavior	Stunting Incident		No Stunting (%)	Total (%)	*p-value	Correlation coefficient
	Stunting (%)	(%)				
Smoking	50	93	51	101	0,00	0,378
Not Smoking	4	7	57	61		
Total	54	100	108	162	100	

\*Bivariate Test Results with rank Spearman correlation

According to the information in the table above, it was discovered that 50 respondents (93%) of children who fell into the category of stunting had parents who smoked, whereas 51 respondents (47%) of children who did not fall into this group had parents who smoked. While those who do not smoke have stunting under five, amounting to 4 respondents (7%) and not stunted people are 57 respondents (53%).

According to the Spearman correlation test findings, which generated a value of  $p = 0.00$  ( $p < 0.05$ ), there is a correlation between parental smoking behaviour and the prevalence of stunting in toddlers between the ages of 24-59 months, with a correlation strength value of 0.378. Stunting prevalence in young children shows a significant correlation.

## 4 Discussion

Regarding the type of work, the results of this study indicate that most of the respondents work as farmers, namely 83 people (51%). A person's work environment can help gain experience and knowledge, either directly or indirectly [7]. Based on the age of the respondents, it was found that most of the respondents were between the ages of 20-35 years, with a total of 105 people (65%). Age affects the development of a person's perception and mindset; the older a person is, mental development processes get better [8]. However, at a

certain age, the increase in this mental development process is not as fast as in your teens [9]. Increasing a person's age can affect the increase in the knowledge he gains [10].

This study found that most of the respondents had a good level of knowledge, namely 110 respondents (68%). The level of knowledge is influenced by several factors, including education, occupation, and age [11]. Based on the results of this study, it was found that the education level of the respondents consists of 71 (44%) people who backgrounded in senior high school.

According to the theory, education is a learning process that aims to enhance certain skills so that learning goals can function independently. The ability of a person to easily absorb and comprehend the knowledge they have gained is also determined by their educational background. In general, a person's knowledge improves with increasing levels of education [12].

The percentage of the incidence of stunting decreased by 108 children under five (67%). Prevalence data from stunting toddlers has decreased from 27% to 24,4% [1]. Of course, various parties collaborate to accelerate stunting reduction through specific and sensitive interventions.

The results of the bivariate analysis obtained a p-value of 0.000, which means that there is a relationship between parental smoking behaviour and the incidence of stunting in toddlers. First, In terms of the cost of shopping for cigarettes, it makes parents reduce their allotted costs for shopping for nutritious food; the cost of health, education, and the need for nutritious food that is essential for the growth and development of toddlers are hampered. This result is in line with research [13] that smoking parents will exacerbate poverty because the economic burden is more concerned with smoking than food so that it can lead to malnutrition among children in low-income families. The National Family Health Survey results in India also show that children from households where at least one family member smokes are more likely to have children of short height and underweight.

Second, cigarette smoke interferes with the absorption of nutrients in children, which will interfere with the child's growth and development [14]. The nicotine content in tobacco leaves is a toxic chemical, similar to alkaline. One type of stimulant drug that can damage the heart and blood circulation [15]. In line with research [16] regarding the relationship between smoking and malnutrition in children, smoking parents also expose family members to tobacco smoke, increasing the risk of respiratory diseases in infants and children respiratory infections and asthma. Potentially contribute to impaired growth and development of children. Environmental tobacco smoke can also cause DNA damage and interfere with the growth and development of fetal organ systems [17].

## **5 Conclusion**

By the study, 85 persons, including ten lightweight smokers (6%), 60 medium smokers (37%), and 15 heavy smokers (9%), smoked the most. In the meantime, 54 toddlers (33%) had stunting. This study also found a relationship between parental smoking behaviour and stunting incidence, as evidenced by the value of  $p = 0.00$  ( $p < 0.05$ ) and had a correlation coefficient of 0.378. This result indicates that the prevalence of stunting and parental smoking behaviour are strongly correlated. According to a study, smoking can, directly and indirectly, affect one's health. Both direct and indirect effects will occur from parental smoking behaviour. We can clearly see how nicotine and alkaline content can harm a child's ability to grow. While the indirect effect can be evident in parents' financial ability to meet children's nutritional demands, which will subsequently hinder children's growth and development.

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