

Conference Paper

Factors Affecting Stunting Among Toddlers Aged 24-25 Months

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Abstract.

Toddler growth disorders with indicators of relatively short heights are usually called stunting. This study aims to determine factors related to stunting in toddlers aged 24-59 months in Tambakbaya Village, Cibadak Public Health Center. A case-control method was used for this research. The population in this study were all mothers who had toddlers aged 24-59 months in Tambakbaya Village. The sample used was 44 mothers, where the case and control groups had a ratio of 1:1. The Chi-square test was used to analyze the data. Statistical analysis found no association between maternal nutrition during pregnancy and child growth (height/weight) at 24–59 months ($p = 0.472$), birth weight ($p = 0.488$), birth length ($p = 0.698$), vaccination status ($p = 0.412$), growth (height/weight) at 24–59 months ($p = 0.698$). However, this study showed a potential risk of stunting as shown by the odds ratio (OR) value. This result was due to the high awareness of participation in the Integrated Health Center every month, which can detect stunting cases easily and quickly. This condition affects health workers' immediate action to prevent and address the issues by providing additional nutrition. Maternal nutrition needs to be considered through monitoring the mother's nutritional status during pregnancy through ANC and monitoring and improving child nutrition after birth, namely the first 1000 days of life.

Keywords: birth length, birth weight stunting, immunization, nutrition

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1. Introduction

According to UNICEF (2012), nutritional problems, especially in children who are short in height (stunting), hamper the development of children with negative impacts that will occur in the next life. Short children are more likely to become adults who show a lower level of intelligence, are poorer, less healthy, and more susceptible to non-communicable diseases. Therefore, it is generally assumed that having a large percentage of children who are small in stature is an indicator of a country's weak human resource quality, further diminishing the country's potential for future economic (Mustamin et al., 2015).

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According to World Health Organization (WHO) data on the prevalence of toddler stunting, Indonesia has the third greatest majority in the Southeast Asia area (SEAR). There was a 36.4 percent average prevalence of stunting among Indonesian toddlers between 2005 and 2017 (Kemenkes RI, 2018).

In Banten Province, the average incidence of stunting rate in 2017 was 29.6% and decreased in 2018 to 26.6%). If it is calculated, stunting cases in Banten Province at the beginning of 2019 were 2,934 children (Ministry of Health of the Republic of Indonesia, 2018). In 2017 stunting in children aged 0-59 months in Lebak Regency (In a district with the lowest health status for cases that cause stunting, such as Lebak Regency is an area with the most significant low birth weight baby, namely 20 babies out of 100 babies born. LBW often occurs in premature babies born prematurely for various reasons. The average breastfeeding is only 10.03 months. Toddlers who have complete immunization status are only 37.2%, the second lowest after Pandeglang District) (BPS, 2021), which reached 14.7% and in 2018 decreased to 10% (Ministry of Health of the Republic of Indonesia, 2019). Despite falling short of the 28% goal set for 2019 in the National Medium-Term Development Plan, this result is nevertheless encouraging, and the government has established a variety of programs to further eliminate stunting.

In Cibadak Health Centre Area, the stunting incidence rate in 2017 (16.9%) decreased in 2018 (13.8%) and increased again in 2019 (21.9%). In Tambakbaya Village, the stunting rate for toddlers aged 0-59 months was in 2018 (23.5%) and in September 2019 (10.6). The factors that cause stunting are maternal education, sanitation, clean water, exclusive breastfeeding, complementary feeding, immunization, low birth weight (LBW), food intake, health service facilities, and family economic condition (Nova, 2018).

Based on Basic Health Research (2013), the prevalence of short birth length <48 cm in Indonesia is 20.2%. Body length is an indicator to ensure that the baby's physical growth is running normally. The standard body length in infants is 48-52 cm. Body length will continue to increase every month (Widiastin, 2018). Births in which the infant measured less than 48 centimeters in length were associated with a 4,091-fold higher risk of stunting than those in which the infant measured an average 48 centimeters or above (Sulistyawati, 2018).

Babies with a weight of less than 2,500 grams at birth are considered to be Low Birth Weight (LBW). Riskesdas reported that in 2018, the incidence of LBW was 6.2%. This will have a major effect on issues including improperly functioning organs, children's poor IQ, developmental abnormalities, and neurological illnesses (Dieny, 2019). Data

collected by Sulistyawati throughout his studies (2018). Inadequate prenatal nutrition can lead to a low birth weight, or a birth weight of less than 2500 grams. In this analysis, researchers discovered that 27.8% of children younger than five were stunted, with birth weight being the primary determinant of stunting. Young children whose birth weight was less than 2,500 grams are 11 times more likely to be stunted by the time they reach the toddler years. The incidence of stunting in toddlers was found to be decreased in the previous study when exclusive breastfeeding was practiced, with a chi-square significance threshold of $p = 0.000$ (0.05). Meanwhile, the odds ratio test reveals that non-breastfed toddlers are 61 times more likely to be underweight for their age than exclusively-breastfed toddlers.

In Lebak Regency, one of the main problems that are alleged to exacerbate malnutrition cases that cause growth disorders is early complementary feeding (< 6 months), where the incidence continues to increase from 2018, which was only 38.3%, rising to 45.3 % in 2019 and 54.6% in 2019 (Ministry of Health. 2019). This study aims to explore factors that affect stunting among toddlers aged 24 – 59 months in Tambakbaya Village, Cibadak health center.

2. Methods

2.1. Study Design

This study used a case-control design.

2.2. Sample

The population in this study were all mothers with toddlers (24-59 months) in Tambakjaya Village, Cibadak Health Centre area in 2019, totaling 620 people. The sample size for this research was 44 participants: 22 in the case group (with weight/age growth disorders) and 22 in the control group (with normal results). The inclusion criteria are possession of a book on maternal and child health and being born to a health care provider.

2.3. Instrument

Instrument in this study were book on maternal and Child Health, satature metre, Weight Scale, Z score grafic.

2.4. Data Collection Procedure

The technique used by the researchers in this study is to utilize the data available in the Maternal Child Health book for toddlers who are stunted. As well as researchers reassured the nutritional status of children under five by directly measuring the research respondents. The first thing to do is to choose toddlers who will be respondents, whether stunted or not and classify the data based on the variables needed in the study.

2.5. Data Analysis

Various types of analysis including univariate, bivariate, and multivariate were performed. A description or distribution of data can be obtained using univariate analysis. Bivariate analysis was carried out using the chi-square test at the 95% confidence level ($\alpha=0.05$). At the 95% confidence level, the decisions taken from this analytical test took into account the p-value and the odds ratio (OR) of the relationship between the variables in this study.

3. Results

According research result, frequency distribution of research factor as shown at table 1.

Table 1 demonstrates that toddlers with height-for-age growth abnormalities (case group) and toddlers with average growth (control group) each make up 50% of the sample (ratio 1:1). Based on the Table 1 can be seen that toddlers 24-59 months (15.9%) to have incomplete immunization status, Chronic energy deficiency in pregnancy, which is 22.7%, and it can be seen that very few toddlers aged 24-59 months were born in the short category and 4.5% of children aged 24-59 months are LBW (less than 2500 grams).

TABLE 1: Frequency Distribution of Stunting Determine.

Variable	Category	N	Percentage (%)
Height/Age	Stunting	22	50%
	Normal	22	50%
The immunization status	Not- complete	7	15,9
	complete	37	84,1
Background on prenatal nutrition	Chronic energy deficiency	10	22,7
	Not - Chronic energy deficiency	34	77,3
Birth Length	Short - baby	8	18,2
	Normal	36	81,8
Birth Weight	LBW	2	4,5
	Normal	42	95,5
	Total	44	100

TABLE 2: Factors Affecting Stunting Among Toddlers aged 24 -25 Months.

Category	Growth		Total	P-Value	OR	
	Stunting	Normal				
Immunization Status	Incomplete	5 (22,7%)	2 (9,1%)	7 (15,9%)	0,41	2,941 (0,505 - 17,141)
	Complete	17 (77,3%)	20 (90,9%)	37 (84,1%)		
Background on prenatal nutrition	Chronic energy deficiency	6 (27,3%)	4 (18,2%)	10 (22,7%)	0,47	1,688 (0,403 - 7,074)
	Not - Chronic energy deficiency	16 (72,7%)	18 (81,8%)	34 (77,3%)		
Birth length	Short-Baby	5 (22,7%)	3 (13,6%)	10 (18,2%)	0,698	1,863 (0,386 - 8,988)
	Normal	17 (77,3%)	19 (86,4%)	34 (81,8%)		
Birth weight	LBW	2 (9,1%)	0 (0,0%)	2 (4,5%)	0,488	
	Normal	20 (90,9%)	22 (100%)	42 (95,5%)		

Table 2 shows that toddlers aged 24-59 months with incomplete immunization status have a higher proportion of children with growth disorders (short and very short) and there is no significant relationship between immunization status and growth (Height/Age) of toddlers aged 24-59 months. Mothers with a history of maternal nutritional status

during pregnancy with CED have a more significant proportion of having children with growth disorders (short and very short) by 27.3% compared to those with normal growth of 18.2%. There is no statistically significant correlation between their mothers' prenatal nutritional quality and their physical development. According to the data in the table 2, children born into the short group (48 cm) have a 22.7% higher chance of developing growth abnormalities (temporary and extremely short) compared to children who develop normally (13.6%). Toddlers aged 24-59 months with low birth weight (LBW) category (<2500 grams) have a higher proportion of growing into toddlers with growth disorders (short and very short) by 9.1% compared to those who grow normally at 0,00%. The results of statistical tests using Chi-Square at $\alpha = 0.05$ showed that there is no significant relationship between birth weight and growth (Height/Age) of toddlers aged 24-59 months.

4. Discussion

The study discovered that there was no statistically significant relationship between immunization status and stunting in children under the age of five. In line with previous research in Depok, which stated that there was no significant relationship between immunization status and the incidence of stunting (Mirani,2018). In line with research in Bandar Lampung, which stated that there was no relationship between immunization status and the incidence of stunting in toddlers. When compared to toddlers whose immunization status is complete, toddlers whose immunization status is incomplete have almost three times the risk of developing growth disorders (Height/Age). This is demonstrated by the OR value of 2,941. A previous study conducted in Klaten stated that there was a significant relationship between immunization status and the incidence of stunting (Putri dalam Setyawan DKK. 2020). From the theoretical analysis, immunization minimizes PD3I in children so that children's growth and development are more optimal. Infection is known to suppress the body's natural immune responses because it drains resources (Asmin, 2021). In addition, the presence of disease causes a decrease in the child's appetite, so food intake for growth and development decreases. Based on this, it can be said that one of the efforts to reduce the incidence of stunting is to provide complete immunization to children.

Growth (Height/Age) variable showed no statistically significant correlation between mother nutritional status during pregnancy and stunting. Mothers who have a history

of nutritional status Chronic Energy Deficiency (CED) during pregnancy have almost two times the risk of having a baby with growth disorders (Height/Age) compared to mothers who have a history of nutritional status. This result is in line with previous research, which said that pregnant women who experience Chronic Energy Deficiency have 4.85 times greater chance of causing stunting. The development of the fetus depends on the mother's diet both before and during pregnancy. Pregnant women who are healthy nutritionally have a better chance of having babies who are both full-term and of a healthy weight. In other words, a mother's nutritional status before and during pregnancy has a significant impact on the health of her newborn. The risk of CED in pregnant women will increase the incidence of stunting when giving birth to babies with LBW. Nutrient intake from food is one of the factors that determine the nutritional status of the mother before and during pregnancy, and will subsequently affect the outcome of conception. Because the central nervous system is particularly vulnerable in the first 2-5 weeks of pregnancy, babies born to women who were malnourished before to or in the first week of pregnancy are more likely to be born with brain and bone marrow damage. Babies born to mothers who have been malnourished during the third trimester are likely to be born prematurely and have a low birth weight.

In this study, there is no relationship between birth length with stunting. This is in line with research conducted before that there is a significant relationship between birth length and stunting nutritional status (Sulistyawati, 2018). The Z-score of body length for age in newborns is correlated with motor and social emotional development since the baby is zero months old. Babies with short birth length have a higher chance of growing short than normal born long children. Children with short birth lengths indicate a lack of nutrition by the mother during pregnancy. Pregnant women who are anemic are prone to disease and cause non-optimal fetal growth. Cases that often occur are premature babies with low birth weight and low birth length.

It was determined from the data that there was no statistically significant connection between birth weight and stunting. This is different from Kolbrek's research in Sulistyawati.2018 in Yogyakarta, which showed that toddlers born with low birth weight were associated with stunting in toddlers. LBW is not the only factor that causes stunting, according to (Setiawan et al., 2018). In addition to LBW, the factors that can cause stunting are adequacy in exclusive breastfeeding, family economic income, and mother's knowledge about nutrition. Meanwhile, another studies show that a history of illness

and exclusive breastfeeding play a role in determining who is born into low-income families (Zahriany, 2017).

5. Conclusion

There is no factors effect of stunting Among Toddlers aged 24 -25 Months. For stunting reduction require cooperation from all parties and making a joint commitment to health workers in the quantity and quality of adequate human resources requires program integrity with the activities and management of the Public Health Facility.

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7. Conflict of Interest

There is no conflict of interest in this research.

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