

# Relationship between Birth Weight and Nutritional Status in Stunted Toddlers

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**Abstract:** *Stunting is closely related to conditions of malnutrition during the early growth period which can affect the health and productivity of children until adulthood. One of the factors that plays a role in the development of stunting is the child's weight at birth. Weight at birth not only reflects the mother's health during pregnancy, but can also be a potential predictor of the risk of stunting in children. Research studies argue that children who are born low birth weight have a higher risk of experiencing stunting during infancy. This type of research is a cross-sectional study with a population of 99 children aged under five years, using the rho test statistical test with a force level of 95% (0.05). The results showed that the number of babies with low birth weight was 12 (12.1%); The baby's birth weight in the normal category was 86 (86.9%) and the birth weight in the higher category was 1 (1%). Nutritional status based on BW/TB in the category of poor nutrition was 4 people (4%); under nutrition category was 39 people (39.4%) and good nutrition was 56 people (56.6%). In this study birth weight had a relationship which is sufficient for stunted children with a correlation coefficient of 0.219 and a sig value of 0.29.*

**Keywords:** stunting, growth, birth weight

## 1. Introduction

Children's growth and development is an indicator of community welfare that can reflect nutritional, health and environmental conditions. Stunting or failure to thrive in toddlers is a significant public health issue in many countries, including Indonesia. Stunting is closely related to malnutrition during the early growth period which can affect the health and productivity of the child until adulthood. One of the factors that plays a role in the development of stunting is the child's weight at birth. Birth weight not only reflects the mother's health during pregnancy, but can also be a potential predictor of the risk of stunting in children. Research studies argue that children who are born low birth weight have a higher risk of experiencing stunting during infancy. However, other factors such as nutritional intake and feeding practices are very important to determine the nutritional status of children under five. Research results prove that pregnant women who are malnourished tend to give birth to babies with low birth weight, namely <2500 grams at birth. Babies born LBW tend not to have enough nutritional reserves in their bodies, however by providing proper nutrition and feeding patterns they can increase the baby's weight. Low birth weight category, namely <2500 grams; The normal category is 2500-4000 grams and the baby's birth weight is more than 4000 grams. The criteria for a normal baby are being born at an even gestational age of 37 weeks to 42 weeks, with a birth weight of 2500-4000 grams, body length: 48-52 cm, chest circumference: 30-38 cm, Apgar score of 7-10 and no congenital defects.

Stunting in children under five can be influenced by various factors, including factors related to the baby's weight. The factors causing stunting which are related to the baby's weight are as follows: Low baby weight at birth, maternal nutrition during pregnancy, maternal health during pregnancy, maternal age, environment and socio-economics. Apart from that, infections experienced by the mother during pregnancy, especially those that are chronic, can also affect

the health of the fetus and the baby's birth weight, thereby creating a risk of stunting.

## 2. Case Study

This type of research is a cross-sectional study with a population of 99 children aged under five years, using the rho test statistical test with a force level of 95% (0.05). The results showed that the number of babies with low birth weight was 12 (12.1%); The baby's birth weight in the normal category was 86 (86.9%) and the birth weight in the higher category was 1 (1%). Nutritional status based on BW/TB in the category of poor nutrition was 4 people (4%); under nutrition category was 39 people (39.4%) and good nutrition was 56 people (56.6%). In this study birth weight had a relationship which is sufficient for stunted children with a correlation coefficient of 0.219 and a sig value of 0.29. The results of a correlation coefficient of 0.219 and a significance value (sig) of 0.29 in the Spearman Rank test indicate a weak positive correlation between the two variables tested. However, because the significance value (sig) is greater than the generally chosen significance level (for example 0.05), the results cannot be considered statistically significant.

In other words, even if there is a weak positive relationship between two variables, the results do not exceed the commonly used statistical significance limits (0.05 or 5%). Therefore, it cannot be concluded that the relationship is significantly different from zero or that the relationship is the result of chance.

In the context of the Spearman Rank test, the correlation coefficient assesses the strength and direction of the monotonic relationship between two variables. A coefficient value close to 1 indicates a strong positive relationship, a value close to -1 indicates a strong negative relationship, and a value close to 0 indicates a weak or no relationship. In this case, the value 0.219 indicates a weak positive relationship.

However, because the significance value does not reach the commonly used significance level (0.05), the results cannot be relied on to make strong conclusions. In statistical analysis, it is important to pay attention to both coefficient values and significance values to interpret the results correctly.

### 3. Conclusions

The results of a correlation coefficient of 0.219 and a significance value (sig) of 0.29 in the Spearman Rank test indicate a weak positive correlation between the two variables tested. However, because the significance value (sig) is greater than the generally chosen significance level (for example 0.05), the result cannot be considered statistically significant. In other words, even though there is a weak positive relationship between two variables, the result does not exceed Statistical significance limits are usually used (0.05 or 5%). Therefore, it cannot be concluded that the relationship is significantly different from zero or that the relationship is the result of chance.

Weight at birth is not one of the causes of stunting. However, if the baby's weight is low at birth, there is a higher risk of experiencing stunting. Low birth weight can reflect the mother's health condition, namely meeting nutritional needs during pregnancy as well as comorbidities during pregnancy. Maternal nutrition during pregnancy has an important role in fetal growth. Malnutrition in the mother during pregnancy can result in stunted fetal growth and has the potential to cause low birth weight, thereby increasing the risk of stunting. Apart from the baby's weight at birth, the factor of providing nutrition after the baby is born also has a big influence on the incidence of stunting. Adequate nutrition for toddlers will reduce the impact of stunting, especially breastfeeding and complementary foods. Providing inadequate complementary foods for breast milk which includes poor food quality, inadequate feeding practices and inadequate food safety will also influence the incidence of stunting.

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