



ENVIRONMENTAL AND NUTRITIONAL STATUS RELATIONSHIP TO STUNTING EVENTS IN SCHOOL AGE

Silvah¹, M. Irsan Arief Ilham², Saktiawati²,

¹ Midwifery Study Program, STIKes Bataraguru Soroaka, Indonesia

² Ners Program, STIKes Bataraguru Soroaka, Indonesia

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CORRESPONDENCE

Phone : 085255499945
Email : silvahfisi145@gmail.com

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ABSTRACT

Background: Primary school age children are children aged 6-12 years. During school age, growth continues even though it is not as fast as the growth that occurred earlier in infancy or later in adolescence.

Objective: Stunting is a chronic nutritional problem in children characterized by a shorter height compared to children their age. Children who suffer from stunting will be more susceptible to disease and as adults are at risk for degenerative diseases, the impact of stunting is not only on the health side but also affects the level of intelligence of the child.

Method: This research is an analytical study which aims to determine the relationship between nutritional status and environment on the incidence of stunting in school age children at SD 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi in 2019.

Result: This study shows the nutritional status of the definition of stunting variables, the data obtained are those that are not stunting, 73.33% and those who are stunting 26.2%. The environment of the variable understanding of stunting is obtained by data on students whose respondents are 70% and who are not sufficiently 30%.

Conclusion: To produce good performance, the hospital needs to from the results of the data obtained from all of the variables above, it is generally concluded that there is a relationship between the level of nutritional status and the environment on the incidence of stunting

INTRODUCTION

The emergence of child malnutrition in infancy, will affect the growth of children during primary school age. Growth in short

children (stunting) is high can be influenced by many factors, one of which is the lack of nutrient intake. The growth rate of both men and women slows down between the ages of

6-9 years. The growth rate of boys and girls is almost as fast until the age of 9 before entering puberty.

Nutritional problems in children are influenced by inadequate food intake and infectious diseases. Countermeasures to improve children's food intake are given an integrated program that has been implemented in Indonesia, among others, by adding nutritional supplements to children's diets or providing foods enriched with vitamins and minerals, providing counseling to fathers and mothers about feeding practices that must go hand in hand with teaching parents about optimal health and hygiene behavior (UNICEF, 2012).

Nutritional status is an expression of a person's health condition which is influenced by the use of nutrients in the body. The nutritional status of elementary school children can be determined using anthropometric parameters with the index measuring body weight for age (BB/U), body weight for height (BB/TB) and height for age (TB /U). According to the Ministry of Health (2010), The TB/U measurement index can be categorized as follows: very short ($z\text{-score} < -3SD$), short ($z\text{-score} -3SD$ to $< -2SD$), normal ($z\text{-score} -2SD$ s / d $2 SD$) and height ($z\text{-score} > 2SD$). The state of stunting can be seen by looking at the $z\text{-score} < -2 SD$ which is associated with the age and height of the child as determined by the World Health Organization (WHO).

Rural areas have a greater proportion of children with stunting, which is 40% compared to urban areas, which is 33%. Rough estimates in 2007 indicate that approximately 81% of districts in Indonesia have prevalence of children stunting a very high (UNICEF, 2012).

Based on the 2013 Riskesdas, it was found that the prevalence of stunting in school age children (6-12 years) in Indonesia was 30.7% with the prevalence in DKI Jakarta Province around 20%. To see the magnitude of the stunting problem is not just the prevalence only, but looks at the urgency of the resulting health impacts. Stunting (low height for age) reflects poor linear growth. This condition accumulates since the pre- and postnatal period caused by poor nutrition and health. Stunting at an early age will have detrimental effects on intelligence, psychomotor development, fine motor skills and neurosensory integration.

Nutritional problems at school age, can lead to low quality levels of education, high. absenteeism, and increasing dropout rates (Sulastri, 2012). The learning achievement of children with malnutrition such as stunting can be affected, because the ability of children to take part in lessons in school is disrupted. In such circumstances, it is difficult to create a smart and productive future generation of the nation so that they are able to take part and compete in the era of globalization (Picauly & Toy, 2013).

How to assess nutritional status can be done by anthropometric, clinical, biochemical, and biophysical measurements. Anthropometric measurements can be made with several types of measurements, namely measuring body weight, height, upper arm circumference, and so on. From some of these measurements, the measurement of body weight (BB) according to age (U) is one of the measurements anthropometric that are often carried out in nutritional surveys (Depkes RI, 2002; Soekirman 2000).

This study aims to determine the relationship between nutritional status and the environment on the incidence of stunting in school-age children at SDN 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi in 2019".

METHOD

This research is an analytical study which aims to determine the relationship between nutritional status and nutritional status. environment against the incidence of stunting in school age children at SDN 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi in 2019". Sampling in this study used a purposive sampling method. Descriptive analysis was made using tables to develop the nutritional status of students against the incidence of stunting in school age children at SDN 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi in 2019".

RESULTS

Characteristics of Respondents

Based on table 1 it can be known that of the 30 respondents who have been in the observation, the number of male respondents is less, namely 13 people with a percentage of 43.33% and female respondents totaling 17 people with a percentage of 56.66%. While the distribution is based on the nutritional status of the 30 respondents who have been observed. More respondents with normal nutritional status or not stunting were 22 people (73.33%). Meanwhile, the number of respondents with stunting nutritional status was 8 people with a percentage (26.66%). Distribution based on the environment of the 30 respondents who have been observed who answered Yes with 21 people with a percentage of 70% compared to those who answered No with the number of 8 people with a percentage of 30%.

Table 1. Characteristics Of Respondents Based On Gender, Nutritional Status, Environment And Incidence Of Stunting

| Characteristics | n | (%) |
|---|----------|------------|
| Gender | | |
| Male | 13 | 43.3 |
| Female | 17 | 56.7 |
| nutritional status | | |
| Good | 22 | 73.4 |
| Less | 8 | 26.6 |
| Environment | | |
| Appropriate | 21 | 70 |
| Incompatible | 9 | 30 |
| Incidence of Stunting (Measured by Weight, TB and Age) | | |
| Stunting | 6 | 20 |
| No Stunting | 24 | 80 |

Source: Primary Data, 2019

Bivariate Analysis

Based on table 2, there are 15% of respondents with good nutritional status with the incidence of stunting and 58.4% with status good nutritional did not occur stunting, while 5% malnutrition with the incidence of stunting and 21.6% were suffering from undernourishment but did not experience stunting.

Table 2. Relationship Between Nutritional Status and Incidence Of Stunting

| Nutritional status | Incidence of stunting | | Total | p - Value |
|--------------------|-----------------------|-------|-------|-----------|
| | Yes | Not | | |
| Good | 15% | 58.4% | 73.4% | 0.001 |
| Less | 5% | 21.6% | 26.6% | |
| Total | 20% | 80% | 100% | |

Source: Secondary Data, 2019

Environmental factors for the incidence of stunting

Based on Table 3, there are 16% of respondents with good environmental conditions with incidents *stunting* and 54% with the appropriate environment did not experience stunting temporary 4% unsuitable environments were stunted and 26% of unsuitable environments were not stunted.

Table 3. The Relationship Between The Environment And The Incidence Of Stunting

| Environmental | Incidence of stunting | | Total | p-value |
|---------------|-----------------------|-----|-------|---------|
| | Yes | Not | | |
| Suitable | 16% | 54% | 70% | 0.001 |
| Not suitable | 4% | 26% | 30% | |
| Total | 20% | 80% | 100% | |

Source: Primary data, 2019

DISCUSSION

Relationship nutritional status with the incidence of stunting.

Based on the results of Fisher's test, the value of $p = 0.001$ (<0.005) is obtained so that based on these results it can be said that there is a relationship between nutritional status and the incidence of stunting. Nutritional status is a manifestation of the state of the body that reflects the results of each meal consumed. Food intake that does not meet adequacy and a long time will result in malnutrition in children. In this study, it was found that a number of children with stunting nutritional status were still high, namely 26.6%, this is higher than the results of the study of Abbas Basuni Jahari (2010) in Sukabumi district. West Java which found stunting or stunted children was 25.3% and this figure is the same as the prevalence of stunting children in Indonesia.

There are still short children in this study, it is suspected that the cause is due to environmental and economic factors that hit Indonesia several years ago, new children who entered school in the 2010 academic year were children born in that year so that during the crisis it could cause people's purchasing power to meet children's food needs that have an impact on the nutritional status of the child.

To achieve good growth and development, adequate nutrition is required. Food that is not good in quality and quantity will cause malnutrition. The state of

malnutrition can cause growth and development disorders, especially in development which can result in changes in brain structure and function. The human brain undergoes remarkable structural and functional changes between the 24th and 42nd week after conception. This development continues after birth until the age of 2 or 3 years, the fastest period of age in the first 6 months of life. Thus the growth of brain cells lasts until the age of 3 years (Gladys, 2011).

The results of this study are in line with research conducted by Puspitasari et al (2011) which was conducted in IDD endemic areas. The result was that there was a significant relationship between nutritional status and verbal ability and cognitive abilities, subjects who were stunted were 9.226 times more likely to have an IQ score below the average when compared to subjects who were not stunted.

A good nutritional status will affect the process of child growth and development, one of which is increasing intellectual abilities which will affect learning achievement at school. This is also in line with the research of Picauly and Toy (2013) which analyzed the determinants and effects of stunting on learning achievement of school children in Kupang and East Sumba. The study concluded that students who were stunted tended to have less learning achievement when compared to students who were not stunted who did more well (UNICEF, 2012).

According to Willis in Agustini (2013) stimulation and means can influence intellectual development. The meaning of stimulation here is how parents provide good education to their children and the availability of facilities, namely tools that can facilitate children's education. Syah in Agustini (2013) states that a student who is apathetic towards science usually tends to take a learning approach that is not deep and tends to be simpler. Conversely, a student who has high intelligence and gets positive encouragement from his parents is likely to choose a learning approach that is more concerned with the quality of learning outcomes.

According to research conducted by Puspitasari et al. (2011) the determinants of stunting are family income, maternal nutritional knowledge, maternal parenting, history of disease infection, history of immunization, protein intake and mother's education. Meanwhile, the factors that are significantly related to the level of cognitive development of an individual according to research conducted by Solihin et al. (2013) are nutritional status, age of old children following PAUD and child care practices. Nutritional status based on the TB/U index is not the only factor that can affect cognitive abilities.

Relationship between the Environment and the Incidence of Stunting

From the bivariate analysis of the incidence of stunting with environmental conditions, the results of the Chi-Square Test

with $\alpha = 0.01$ show that the value of $p = 0.001 < 0.05$ shows that the test decision obtained is that H_a is accepted, meaning that there is a relationship between environmental conditions with the incidence of stunting in school-age children at SDN 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi in 2019".

The results of this study indicate that environmental conditions there are still very minimal evidence from the results of the questionnaire stating that clean water sanitation and lack of aspects latrines which greatly affect the incidence of stunting. Environmental sanitation, especially clean water, prevents the development of diseases which together with sanitation and hygiene affect the health of nutritional status, especially malnutrition. An environment that does not meet health requirements allows the occurrence of various types of diseases. The condition of the house has a significant effect on the nutritional status of children. Good environmental sanitation can protect children against stunting.

Environmental health is part of the fundamentals of modern public health which includes all aspects of humans in relation to the environment, with the aim of enhancing and maintaining human health values at the highest level by modifying not only social factors and the physical environment solely, but also to all the characteristics and behaviors of the environment that can bring

about the calm, health and safety of human organisms (Mulia Ricky M, 2005).

According to the World Health Organization, environmental health is an ecological balance that must exist between humans and the environment in order to ensure the health of humans.

Research conducted by Uliyanti (2017) in West Kalimantan shows that there is a significant relationship between stunting and clean living habits. and healthy. The results of univariate analysis obtained information that 30.4% had a good PHBS, 61.8% were in the moderate category and 7.8% were not good. The results of the research conducted indicate that the behavior of clean and healthy living in the downstream Matan sub-district is still relatively low. This statement is based on data from observations of the respondent's clean and healthy lifestyle, especially in terms of the aspect of clean water facilities, namely only 66.7% can meet the needs of clean water, other aspects, namely 69% of latrine facilities that meet or have good latrine facilities, Then there are family members who smoke by 78%, for the aspect of eating vegetables and fruit that only meets 64%, while the rest, namely 30.4%, does not eat saturated and fruit.

CONCLUSION

Based on the above results, it can be concluded that: (1) Nutritional status has a significant relationship with the incidence of *stunting*. Children with poor nutritional status

are more likely to experience *stunting* (2) The results of this study indicate that environmental conditions there are still very minimal evidence from the results of the questionnaire which states that clean water sanitation and the lack of latrine aspects greatly affect the incidence of *stunting*.

RECOMMENDATIONS

The suggestions that can be given by researchers are: (1) This research can be a reference, for the development of science, especially *stunting* at SDN 186 Lemahabang, Patoloan Village, Luwu, South Sulawesi. (2) If further research is possible, should use a prospective cohort so that it can be followed from the birth of a toddler regarding what factors are related to The incidence of *stunting* in children under five. (3) The next researcher should be able to continue this research by examining the variables that have not been examined so that future studies can increase knowledge about the incidence of *stunting*.

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