

The Relationship between Nutritional Status and Learning Achievement of School-Age Children in Elementary School

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Abstract

A good nutritional status affected the growth and development of children, including improved intellectual abilities, which will positively affect learning achievement in school. This study aimed to analyze the relationship between nutritional status and the learning achievement of children of school age. Subjects were 67 students of class II to VI were selected using simple random sampling technique. Data about nutritional status was obtained by measuring anthropometry, based on the body mass index/age and height/age, while data about student achievement, obtained from a list of grades. Data were analyzed with Spearman-rank test. The results showed the distribution of nutritional status were: skinny = 49.3%, normal = 29.9%, very skinny = 14.9%, and fat = 6.0%, while the distribution of student achievement were: good = 53.7 %, moderate = 38.8%, and bad = 7.5%. Hypothesis test results indicated that there was a correlation between nutritional status and student achievement.

Keywords: Children, Nutritional Status, Student Achievement

I. INTRODUCTION

One indicator to assess the quality of Human Resources was the Human Development Index (HDI). There were three main determinants of HDI, namely, education, health and economy. These factors were closely related to people's nutritional status. Children who obtained adequate nutrition during pregnancy (good nutritional status), then they would grow and develop optimally in accordance their age, and have a higher life expectancy (Anindya, 2009). The low status of child nutrition would hinder improvement of the quality of human resources. Chronic malnutrition was closely linked with lower student achievement (Anwar, 2008). In Indonesia, the prevalence of children aged 6-12 years, with a height in the category of short and very short, respectively 20.5% and 15.1% (based on measurements of height / age). While the prevalence of "skinny" and "very skinny", respectively 7.6% and 4.6% (based on measurements of body mass index / age). One of the causes of the nutrition problem was the lack of nutrient inputs (Arikunto, 2006).

Children in school age required the intake of nutritious foods to support future growth and development, including to support the development of the brain. If in a long time food lacking nutrients, the metabolism in the brain was interrupted (Cakrawati, 2012). In the case of more severe and chronic, the growth of the body will be disturbed, body size becomes smaller, followed by brain size is also smaller. The number of cells in the brain was also lacking, and biochemical organization imperfections occur in the brain. These conditions affected the development of children's intelligence (Depkes RI, 2004).

According Gibney (2009), children who are malnourished are usually easy sleepy and less passionate, which can further disrupt the learning process and hinder the learning achievement. Intellectual power becomes low, due to the growth of the brain that are not optimal. Thus, it can be said that the low nutritional status negatively impact on the quality of human resources.

The state of nutritional status and learning achievement is a description of what has been consumed by children in the long term. Nutrients such as carbohydrates, proteins, lipids, and other nutrients, especially iron, an important role to support the process of thinking or reasoning, concentration, and is also closely related to learning efficiency (Karyadi, 1996). With good nutritional status, expected learning achievement of school children will increase (Khomsan, 2004).

The purpose of this study was to analyze the relationship between nutritional status and learning achievement of school-age children in elementary school Sonoageng 6, Prambon Sub District, Nganjuk District, Indonesia.

II. RESEARCH METHOD

Table 1 shows the method had been applied in this study.

Table 1: Summary of research method

Design	Cross sectional
Population	All students in the grade II-VI in Elementary School Sonoageng 6, Prambon Sub District, Nganjuk District, Indonesia in 2016 (population size = 67 students).
Variables and data collection technique	<ul style="list-style-type: none"> • Independent variable: nutritional status (obtained from anthropometric measurement: body mass index/age and height/age) • Dependent variable: learning achievement (obtained from a list of grade of Math, Indonesian Language, and Science)
Hypothesis testing	Spearman-rank test

III. RESULTS

Tabel 1: Nutritional Status of Children in Elementary School Sonoageng 6, Prambon Sub District, Nganjuk District, Indonesia, 2015

Nutritional Status	Frequency	Percentage
Very Skinny	10	14,9
Skinny	33	49,3
Normal	20	29,9
Fat	4	6,0
Total	67	100

Table 1 shows that the proportion of children with malnutrition (skinny and very skinny) was still large (64.2%).

Tabel 2: Learning Achievement of Children in Elementary School Sonoageng 6, Prambon Sub District, Nganjuk District, Indonesia, 2015

Learning Achievement	Frequency	Percentage
Excellent	0	0,0
Good	36	53,7
Moderate	26	38,8
Bad	5	7,5
Total	67	100

Table 2 shows that most children (53,7%) have a good learning achievement. This condition indicates that the learning achievement of children had already in line with expectations, but still necessary efforts to improve, because there are no students who achieve excellent learning results.

Results of hypothesis testing using Spearman Rank correlation indicated that the correlation coefficient = 0.705 with p-value = 0.000. Thus, it could be concluded that there was a significant correlation between nutritional status and learning achievement of Children in Elementary School.

IV. DISCUSSION

The intake of nutritious foods for children, will enhance brain development. When children do not get the nutrients they need, and this condition lasts for a long time, it can be an interruption in the metabolic processes in the brain, which can lead to the inability of the brain to function normally. In the case of more severe and chronic malnutrition can cause a reduction in the number of cells in the brain, which in turn can inhibit the children's intellectual development (Anwar, 2008).

Children who are malnourished are usually drowsiness and lack of passion in the activity. These conditions may disrupt the learning process in schools, so that their learning achievements, can be inhibited. The ability to think of the children will also be reduced, because the growth of the brain is also not optimal (Anindya, 2009). The results of previous studies mentioned above are in accordance with the results of this study, where most children in Elementary School Sonoageng 6, Prambon Sub District, Nganjuk District not get adequate nutrition, so that their bodies tend to be skinny. Deficiency of nutrition like this, can inhibit the action of the brain, so that children are not able to concentrate in the following subjects in school, which can ultimately lead to their learning achievement is less than optimal.

The results are consistent with reports by Ijarotimi & Ijadunola (2007) in Nigeria. They found that children with malnutrition undergo changes in metabolism, which in turn impact on cognitive abilities. Insufficient nutrition for children such as protein-energy malnutrition, will have an effect on the function of the hippocampus and cortex in forming and storing memory.

V. CONCLUSION

Based on the results of this study concluded that the nutritional status significantly correlated with student achievement of Children in Elementary School Sonoageng 6, Prambon Sub District, Nganjuk District, Indonesia, 2015.

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