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The Relationship between Nutritional Status and Intelligence Level of Elementary School Children in Benu-Benua Village, Kendari City

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ABSTRACT

Introduction: Kendari city as the provincial capital with the largest number of health facilities and logistical access compared to other cities in Southeast Sulawesi still finds cases of malnutrition around 5%. The percentage of undernourished, at the age of 0-59 months, the highest was recorded at the Benu-benua health center, Benu-benua village at 2.15%, far above the Kendari city average of 0.72%. This nutritional status is thought to be related to the level of intelligence of children in the area..

Method: The type of research that will be conducted is quantitative research with a cross-sectional design. Population of this study is 251 students and the number of samples is 108, the sampling method is stratified random sampling, the data is tested with the Kruskal Wallis test after the data obtained are not normally distributed.

Result: The results of this study on the current nutritional status showed a P Value of 0.017 < 0.05 and the previous nutritional status showed a P Value of 0.026 < 0.5, while the social status showed a P Value of 0.139 > 0.05.

Conclusion: The conclusion of this study is that there is a relationship between current nutritional status and previous nutritional status with students' IQ scores and there is no relationship between socioeconomic status and students' IQ scores.

Introduction

The quality of Indonesia's Human Resources (HR) is currently still lagging behind other countries. This is shown by the position of Indonesia's Human Development Index (HDI) which is ranked 107 out of 189 countries in 2020, lower than the HDI rankings of countries in Southeast Asia. The HDI position of other ASEAN countries is better than Indonesia, such as Singapore 11nd, Brunei 47nd, Malaysia at 62nd, and Thailand 79nd. Determining the quality of human resources is not only determined by HDI.[1] The quality of human resources can also be seen from the quality of a child's education. One of the benchmarks for a child's academic success in school is learning achievement which is the

school's output and a reflection of students' cognitive abilities during learning.[2] Brilliant achievement is a real contribution of students to the State through the learning process at school. Learning achievement is strongly influenced by basic abilities as measured by IQ, but not only IQ plays a role in achieving achievement. Intellectual intelligence in the world of education is a benchmark for the quality of a nation, namely an intelligent and superior nation.[3]

In one study, the average IQ score of Indonesians was reported to be 87 and ranked 20th out of 113 countries in the world. IQ scores are influenced by many factors and one of them is nutritional status, both undernourished and over-nourished (obesity). In 2018 in Indonesia it was reported that the number of children aged 6-12 years with poor nutritional status, in this case thin and very thin, was around 10%, and nutritional status was overweight and obese around 20%. and very thin around 11.2%, nutritional status overweight and obesity 11.6%.[4]

The city of Kendari as the provincial capital with the largest number of health facilities and logistical access compared to other cities in Southeast Sulawesi still finds cases of malnutrition around 5%. The percentage of undernourished, at the age of 0-59 months, the highest was recorded at the Benu-benua health center, Benu-benua village at 2.15%, far above the Kendari city average of 0.72%.[5] This nutritional status is thought to be related to the level of intelligence of children in the area. The level of intelligence itself is measured at the age of children entering elementary school (6-13 years) considering the possible impact of the previous nutritional status that occurred when they were toddlers. In the Benu-benua sub-district, there are two elementary schools, Public Alementary school 32 and Public Alementary school 43.The purpose of this study was to analyze the relationship between nutritional status and the intelligence level of elementary school children, in the Benu-Benua village, Kendari City.

Method

This research is a quanitative research with cross-sectional design. The total population of 251 students consists of 166 students of Public Alementary school 32 and 85 students of Public Alementary School 43 and the number of samples is 108 consisting of 62 students of Public Alementary School 32 and 46 students of Public Alementary school 4, the data is tested with the Kruskal Wallis test after the data is not normally distributed.[6]

Result

Table 1 shows that the sample is dominated by good nutritional status by 54%, followed by poor nutritional status by 25%.

Table 2 shows the results of the Kruskal Wallis test calculation, the p value (Asymp. Sig.)is 0.017, which is less than the critical research limit of 0.05, which means that there is a significant difference between current nutritional status and IQ scores.

Table 1
Distribution of Samples Based on Nutritional Status

Nutritional Status	n	%
Malnutrition	27	25
Malnutrition	15	14
Good Nutrition	58	54
More Nutrition	6	5
Obesity	2	2
Amount	**108**	**100**

Table 2
Kruskal Wallis Test Current Nutritional Status on IQ scores

	N	Mean	Kruskal-Wallis H	df	Asymp. Sig.
IQ Scores	108	100,64	12,04	4	0,017
Current Nutritional Status	108	2,45			

Discussion

Working Hours with Occupational Diseases

The direct factor related to intellectual intelligence in this study is nutritional status. Malnutrition can cause permanent disruption of brain function and cause cognitive impairment.[7] From the descriptive analysis, it can be seen that the majority of the samples have good nutritional status with a value of 54%, but if you look at the next largest number with a value of 25%, namely children with poor nutritional status, this is very concerning. education and health center, so the number of students with poor nutritional status still needs serious attention from all sectors, both from the government, the community and other sectors involved.

From the inferential analysis, it was found that there was a significant difference between the current nutritional status and IQ scores, in other words, nutritional status had a significant role in the high and low IQ of children. Reflecting on these results, the number of children with poor nutritional status is certainly a problem, because the higher the possibility of children having a low IQ so that there can be interference in the teaching and learning process. In line with other research that found the relationship between nutritional status and intelligence level in junior high school students. Students who are obese are likely to have an IQ below the average of 6.6 times compared to students with normal nutritional status.[8]

Nutrition has been shown to affect a child's intellectual intelligence. Malnutrition, especially protein malnutrition, can lead to irregular brain maturation. Malnutrition at the time of growth, can result in reduced number of brain cells from the normal number. as much as 15-20%. This of course will affect the work of the brain in the future. Will inhibit or interfere with brain growth, which will result in less than optimal development of children's intelligence. Therefore, parents must pay attention to the nutritional status of their children so that they remain in a normal state.[9]

Conclusion

The results of the study stated that there was a relationship between nutritional status and the intelligence level of elementary school children in the Benu-Benua village, Kendari City, The suggestion of this research is the need for an active role across sectors in improving the nutritional status of children in Benu-Benua Village, Kendari City in order to support the assurance of children's IQ scores and the need for further research on the factors that affect nutritional status in Benu-Benua Village, Kendari City.

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