INDONESIAN HEALTH JOURNAL
https://ihj.rivierapublishing.id/index.php/rp
Volume 3 Number 4 December 2024
P-ISSN: 2963-3044
E-ISSN: 2963-3036

The Relationship between Nutritional Status and Intellectual Intelligence In 4th-5th Grade Students at SD N 219 Inpres Pannambungan, Maros

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Received: 01-11-2024 Accepted: 04-11-2024 Published: 17-12-2024

ABSTRACT

Nutritional status is a measure of the condition of a person's body, which can be seen from the food consumed and the use of substances in the body. The purpose of this study is to determine the relationship between nutritional status and intellectual intelligence in elementary school children in grades 4-5 at SDN 219 Inpres Pannambungan. In this study, the research design was observational, with a cross-sectional approach using total sampling. This study uses an intellectual intelligence test tool, namely the CFIT (Culture Fair Intelligence Test. Data analysis was carried out using the SPSS application by conducting univariate analysis related to respondent characteristics, independent variables, and dependent variables, then continued by conducting bivariate analysis, namely the Kolmogorov-Smirnov normality test and the Spearman correlation test. The results of this study showed that the correlation value (-2.72) with the probability value or error level (p=0.035) was smaller than the significant standard value (a=0.05). This study concludes that there is a significant relationship between nutritional status and the intellectual intelligence of children of SDN 219 Pannambungan Presidential Instruction Maros Regency.

Keywords: nutritional status, intellectual intelligence, elementary school children

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INTRODUCTION

Health, education, and the economy in a society are significant to make the development of human resources so that a country is of high quality (Astakhova et al., 2016; Organization, 2016; Shavkidinova et al., 2023). Children, as the next generation of the nation, are part of the development of human resources that must be considered for growth and development. Efforts that need to be made to maximize these conditions are not only fixated on extensive human resources in quantity but also qualified in quality. Therefore, Indonesia's Development 2020-2024 is aimed at forming quality and competitive human resources, namely human resources who are healthy and intelligent, adaptive, innovative, skilled, and characterful.

In this case, improving the quality of early childhood is one of the policies for human development. As the phrase from John F Kennedy *says, "Children are the most valuable resource and its best hope for the future"* (Bappenas, 2019). The success of a nation's national development is determined by the availability of quality human resources (HR), namely human resources that have a muscular physique, strong mentality, and excellent

health, in addition to mastery of science and technology. Malnutrition can damage the quality of human resources (Sumiaty, 2018).

Malnutrition is still a major problem in Indonesia. Indonesia has a high rate of malnutrition (macro and micronutrient deficiencies), but obesity is becoming increasingly common. This is called the "*Double Burden of Malnutrition*." The Double Burden of Nutrition Problems has resulted in many losses, both in the health sector and in the field of development and the economy of Indonesia (Bappenas, 2019).

The quality of life of children in Indonesia is very different from that of other countries. According to the United Nations Children's Fund *(UNICEF),* Indonesia is the fifth largest country with the number of children suffering from stunts, which significantly impacts their ability to develop their full physical and mental potential. This can be seen from the data released by the United Nations Development Programme *(UNDP)* Report showing that in 2018, Indonesia's Human Development Index (HDI) was ranked 108 out of 169 countries, lower than the HDI ranking of countries in Southeast Asia. Indonesia's HDI position is ranked 6th among ASEAN countries; the low HDI in Indonesia is greatly influenced by the low nutritional status and health of the population (Zuraini M, Rais A, 2019).

Indonesian children need good food intake for good child growth and development, and parents who have a good level of knowledge of nutritional status can monitor the growth and development of children optimally. If there is a disorder in the child's growth and development, it can be detected early. The type of food consumed by children will affect their nutritional status. Differences in nutritional status have different influences on each child's development. If balanced nutritional needs are not appropriately met, the achievement of children's growth and development will be hampered (Hasdianah et al., 2014).

From the womb to old age, nutrients are very important for human life. Nutrition cannot be separated as a supporting element in human health. Nutrition is very important to help growth, good nutrition will further improve a person's quality of life. Good nutritional adequacy also functions as an immune booster or an antidote to the emergence of various types of diseases. Humans must consider the food consumed by looking at the level and quality of the nutrients it contains, so that it can be a medicinal property and become an immune system, not a source of disease (Hasdianah et al., 2014).

In the Qur'an, it is recommended to choose good food, said Allah swt in QS. al-Baqarah / 2:57, namely:

وَظَلَّلْنَا عَلَيْكُمُ الْغَمَامَ وَأَنْزَلْنَا عَلَيْكُمُ الْمَنَّ وَالسَّلْوَىٰ ۖ كُلُوا مِنْ طَيِّبَاتِ مَا رَزَقْنَاكُمْ ۖ وَمَا ظَلَمُونَا وَلَٰكِنْ كَانُوا أَنْفُسَهُمْ يَظْلِمُونَ

Meaning:

And we shade you with clouds, and we send down to you "manna" and "salwa". Eat the good food that We have given you, and they did not persecute Us, But they are the ones who persecute themselves.

In the above surah it is explained that indeed Allah swt. Not persecuting someone by providing good food for consumption so that it can meet the adequacy of good nutrition. When they violate religious teachings and disbelieve in blessings, they do not actually wronged Allah, but they persecute themselves, because of the injustice they have committed against them as well. In fact, they are the ones who persecute themselves with irregular and

unhealthy diets that are the source of disaster from the birth of malnutrition (Suharyat & Asiah, 2022; Wardani et al., 2023). Halal must be considered not only as good food but also as a halal.

The words of Allah SWT in QS. al-Baqarah / 2: 168, namely:

يَا أَيُّهَا النَّاسُ كُلُوا مِمَّا فِي الْأَرْضِ حَلَالًا طَيِّبًا وَلَا تَتَّبِعُوا خُطُوَاتِ الشَّيْطَانِ ۚ إِنَّهُ لَكُمْ عَدُوٌّ مُبِينٌ

Meaning:

O people, eat what is lawful and good from what is on the earth, and do not follow the steps of the devil, For the devil is a real enemy to you.

In the verse above Allah SWT. Calling on mankind to always guard themselves against haram goods. In the Qudsi hadith, it is stated that Allah SWT. has given good and halal sustenance to his servants. He knows that to work well, the body must be healthy. Thayyib contains the meaning of mental health and the taste contained in these items, such as meat, fruits, vegetables, which contain various nutrients, proteins, vitamins, and calories needed by the human body. So, they must be given enough food with a balanced menu (Suharyat & Asiah, 2022; Wardani et al., 2023). Lack of knowledge in choosing daily food on the impact of food nutritional value on human health. Malnutrition is also caused by the form of nutrition that people consume without knowing the nutritional adequacy rate (Hasdianah et al., 2014).

Islam strongly emphasizes the importance of humans paying attention to health and the food consumed. In some classical Islamic literature, you will find descriptions explaining medicine and narrations about the life of the Prophet related to medicine and food. Even in the history of Islamic civilization has produced doctors who are famous for their masterpieces, which explore all aspects of human health thoroughly. Islam's concern for human health and food consumption is an important discussion because it is closely related to human values and supports worship (Hasdianah et al., 2014).

Nutritional status is a measure of the condition of a person's body which can be seen from the food consumed and the use of substances in the body. Nutritional status is divided into several categories, namely undernourished status, normal nutrition and overnutrition (Sumiaty, 2018). There are several factors that affect nutritional status, namely, direct factors that include food intake and infectious diseases suffered, as well as indirect factors including family food security, childcare patterns and health services. The impact of inadequate nutritional intake is a decrease in body defense, non-optimal growth, decreased energy production, brain structure and function, and having unsettled and whiny behavior (Septikasari & St, 2018).

The nutritional status depends on a person's nutritional intake level. The level of nutritional intake is determined by the quality and quantity of dishes. Nutritional intake that produces the best health and nutrition is called adequate nutritional intake. If the nutritional intake, both quality and quantity, is exceeded, then there will be a state of overnutrition. On the other hand, nutritional intake that is not good in quality and quantity will provide malnutrition and deficiency conditions.

Good nutritional knowledge will cause a person to be able to compile a good menu for consumption. The more knowledge a mother has, the more a mother will understand the type and amount of food for all her family members to consume, including her children. This can improve the welfare of family members, so that it can reduce or prevent malnutrition in the family. Lack of knowledge of nutrition and health of parents, especially mothers, is one of the causes of malnutrition in children.

Elementary school students are at risk of experiencing nutritional problems related to diet and growth and development. The good nutritional status will affect the process of growth and development of children, one of which can improve intellectual ability so that the phase of school-age children is a phase where children urgently need nutritious food intake to support the growth and development period.

According to Basic Health Research (RISKESDAS 2018), nationally, the prevalence of nutritional status aged 5-12 years consists of very thin 2.4%, thin 6.8%, normal 70.8%, obese 10.8%, obese 9.2%. Meanwhile, the prevalence of nutritional status aged 5-12 years in South Sulawesi consists of 3.0% very thin, 8.6% thin, 74.0% normal, 7.8% obese and 6.5% obese (Ministry of Health of the Republic of Indonesia, 2018).

Based on a 2016 study, the nutritional status of elementary school students in Koto Tangah District, Padang City, was obtained 45.65% of normal nutritional status and 54.35% of malnutrition status, consisting of acute malnutrition as much as 16.3%, post malnutrition as much as 33%, and chronic malnutrition as much as 4.35%. According to data from the West Sumatra Provincial Health Office, the nutritional status in the Padang area is 1240 children suffering from malnutrition, 129 children with malnutrition status, 13816 children with good nutritional status, and 718 children with more than 718 children with malnutrition status.

In the 2017 study, the nutritional status of boys and girls in grade V of SD Negeri 2 Tlahab Kidul, Karangreja District, Purbalingga Regency had a thin category of 4 students (12.50%), a normal category of 23 students (71.88%), an obese category of 3 students (9.37%), and an obesity category of 2 students (6.25%). Based on Basic Health Research (RISKESDAS 2018) in Maros Regency, 4.16% are very thin, 13.27% are thin, 82.89% are normal, 7.97% are obese and 9.67% are obese (Ministry of Health of the Republic of Indonesia, 2018).

Intelligence Quotient is one of the psychological factors that can affect academic achievement. Intelligence tests are used to measure convergent thinking processes, namely the ability to answer or conclude logically based on the information provided. The level of intelligence is influenced by several factors, including genetics, nutrients, the environment, parental education, and socioeconomic status (Yuliwianti et al., 2017).

The decline in intellectual intelligence can also be seen from the number of elementary school students who passed the final school exam in Yogyakarta decreased from 98.98% to 68.74% (BPS, 2012). In the Yogyakarta area, there are around 25.9% of subjects who are stunted (short), and 6.5% are thin with an IQ below average (IQ) (Yuliwianti et al., 2017).

According to data from the Ministry of Education and Culture, the prevalence of the intellectual intelligence level of elementary school children in Maros Regency consists of Very Superior 1.9%, Superior 2.4%, Above Average 7.97%, Average 45.5%, Below Average 27.6%. The age between 6 and 12 years is the age when the children are in elementary school because this age is called the age of elementary school, and it is at the age of 6 when children start school. Thus these children begin to enter a new world where they begin to have a lot of contact with people outside their family, and they are also acquainted with new atmospheres and environments in their lives so that it will affect their eating habits which will certainly affect the nutritional status (Moehji, 2017).

The school age group has been easily reached by various efforts to improve nutrition carried out by the government. Children aged 9-11 years have reached the highest objectivity and are at the stage of concrete operational development, where children have been able to think logically, focused, and in causal relationships more rationally and systematically so that they can solve specific problems in completing a series of IQ tests (Soetjiningsih, 2018). The impact of malnutrition can also be seen in low school participation, low education, and slow economic growth. Cognitive loss at this age can be greater due to malnutrition and poor health experienced during early childhood. The effects of malnutrition in children have lower cognitive abilities. Children with undernutrition had a deficit of 15.3 points in IQ by age 11. Malnutrition and non-verbal IQ are significant in children 6-12 years old. Children with low birth weight have a 3.5 times lower risk of having a non-verbal IQ (OR 3.53 and 95%).

Nutritional status is a strong factor related to IQ scores; children with poor nutritional status have significantly lower IQ scores of 13 points, while children with good nutrition have IQ scores 10 points higher. Malnutrition in a more severe and chronic state causes body growth to be disturbed and followed by the growth of a small brain size (Yuliwianti et al., 2017). Nutritional status will affect a person's level of intelligence and ability to attend classes at school, so people with good nutritional status will have the ability to capture knowledge better and faster and can also achieve good results in school. On the other hand, if a person has a poor nutritional status, it will have an impact on intelligence, so it is less optimal in capturing lessons at school so that learning achievement is not good (Sumiaty, 2018). Malnourished school-age children will have low cognitive abilities, not surprisingly that, schoolchildren with nutritional problems have lower performance. Malnutrition in a heavier and chronic state causes body growth to be disturbed and followed by a small brain size. The number of brain cells decreases, and there is an imperfection of biochemical organization in the brain that can cause permanent disruption of brain function (Yuliwianti et al., 2017).

Based on the description above, nutritional factors are known to be very beneficial for brain growth and development. The balance between intake and nutritional needs will greatly affect the child's growth, development, intelligence, health, activity, etc. To get good nutrition in children, the support of parents or mothers in providing nutritional intake to their children is needed. Based on the description above about factors that can affect the nutritional status of children so that they can affect children's intelligence. Therefore, this study aims to determine the relationship between nutritional status and the level of intellectual intelligence (IQ) of elementary school age children.

METHOD

Data Processing

The data obtained is made in the form of a presentation and a frequency distribution table with table processing then processed systematically, and must go through the following steps: Selection, Aiming to classify data by category, Editing, Re-checking the data that has been obtained as an effort to complete incomplete data, Coding, Coding is carried out to facilitate data processing, also to maintain the confidentiality of the respondent's identity, Tabulation is carried out to group data according to the purpose and then enter it in a table that has been coded according to the analysis needed so that it makes it easier to analyze the data.

Data Analysis

a. Univariate Analysis

Univariate analysis is intended to explain each distribution frequency, such as a description of respondent characteristics, dependent variables and independent variables in this study.

b. Bivariate Analysis

In this study, a normality test was carried out using the Kolmogorov-Smirnov test to determine the distribution of data in a group of data or variables, then analyzed the data according to the results of the normality test. For the parametric test, the bivariate analysis was carried out using the Pearson correlation test, while for the non-parametric test, the bivariate analysis was carried out using the Spearman test.

Data Presentation

The data will be explained in the form of a narrative and presented in a table.

RESULTS AND DISCUSSION

Based on the results of the research and data analysis that has been carried out, the results of the research can be presented as follows:

Univariate Analysis

The general data of respondents included age, gender, occupation of parents and education of students' parents.

1. Characteristics of respondents by age

Table 1. Distribution of Characteristic Frequency Based on Respondent Age in SDN 219 Pannambungan Presidential Instruction Maros Regency

Age	Frequency (f)	Percentage (%)
9 years	6	10,0
10 years	27	45,0
11 years	27	45,0
Total	60	100,0

Source : Primary Data 2021

Based on table 1 of 60 respondents, the characteristics of respondents by age showed that respondents were 10 and 11 years old, namely 27 people (45.0%).

2. Respondent characteristics by gender

Table 2. Distribution of Characteristic Frequency Based on Gender of Respondents in SDN 219 Presidential Instruction of Pannambungan, Maros Regency

Gender	Frequency (f)	Percentage (%)
Man	35	58,3
Woman	25	41,7
Total	60	100,0

Source : Primary Data 2021

Based on table 2 shows that of the 60 respondents, based on gender characteristics, more than half of the respondents were male, which was 35 people (58.3%).

3. Characteristics of respondents based on parental occupation

Table 3. Distribution of Characteristic Frequencies Based on the Occupation of Respondents' Parents in SDN 219 Presidential Instruction Pannambungan, Maros Regency

Parents' Work	Frequency (f)	Percentage (%)
Farmer	31	51,67
Self employed	13	21,67
Daily Labor	15	25
Civil servants	1	1,7
Total	60	100,0

Source : Primary Data 2021

Based on table 3 shows that out of 60 respondents, based on the characteristics of parents' jobs, more than half of the respondents have farmers' parents' jobs, which is as many as 31 people (51.67%).

4. Characteristics of respondents based on parental education

Table 4. Distribution of Characteristic Frequencies Based on Identification of Respondents' Parents in SDN 219 Presidential Instruction Pannambungan, Maros Regency

Parent Education	Frequency (f)	Percentage (%)
SD	1	1,7
JUNIOR	9	15,0
SMA	49	81,7
S1	1	1,7
Total	60	100,0

Source : Primary Data 2021

Based on table 4, it shows that out of 60 respondents, based on the characteristics of parental education, more than half of the respondents have high school parental education, which is 49 people (81.7%).

Income Level of Parents of Children of SDN 219 Pannambungan Presidential Instruction of Maros Regency

Table 5. Distribution of Characteristic Frequency Based on the Income Level of Respondents' Parents in SDN 219 Presidential Instruction of Pannambungan, Maros Regency

Education Level	Frequency (f)	Percentage (%)
Low	36	60,0
Tall	24	40,0
Total	60	100,0

Source : Primary Data 2021

Based on Table 5, shows that out of 60 respondents, based on the income level of the respondents' parents, more than half of the respondents have a low-income level, namely 36 people (60.0%).

Special Data

Average Height and Weight of Elementary School Children 219 Presidential Instruction Pannambungan Maros Regency.

Table 6. Distribution of Average Height and Weight of Children at SDN 219 Presidential Instruction Pannambungan Maros Regency

	TB	BB
Valid	60	60
Missing	0	0
Mean	130,06833	26,0458

Based on Table 6, it shows that from 60 respondents, the average height of children in SD 219 Inpres Pannambungan Maros Regency is 130.6 cm and the weight of children is 26 kg.

Nutritional Status of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Table 7. Distribution of Characteristic Frequency Based on Nutritional Status of Respondents in SDN 219 Presidential Instruction Pannambungan, Maros Regency

Nutritional Status	Frequency (f)	Percentage (%)
malnutrition	1	1,7
undernourished	22	36,7
Good nutrition	32	53,3
More nutrition	4	6,7
Obesity	1	1,7
Total	60	100,0

Source : Primary Data 2021

Based on Table 7, it shows that out of 60 respondents, based on the nutritional status of the respondents, more than half of the respondents had a good nutritional status, namely 32 people (53.3%).

Intellectual Intelligence of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Table 8. Distribution of Characteristic Frequencies Based on Respondents' Intellectual Intelligence in SDN 219 Presidential Instruction of Pannambungan, Maros Regency

Intellectual Intelligence	Frequency (f)	Percentage (%)
Average	14	23,3
below average	14	23,3
Borderline	9	15,0
Mentally Defective	23	38,3
Total	60	100,0

Source : Primary Data 2021

Based on table 8, it shows that out of 60 respondents, based on children's intellectual intelligence, 23 people *(38.3%*) were mentally defective intellectual intelligence.

Bivariate Analysis

The Relationship between Parents' Education Level and the Nutritional Status of Children in SDN 219 Presidential Instruction Pannambungan Maros Regency.

Table 9. The Relationship of Parents' Education to the Nutritional Status of Respondents at SDN 219 Inpres Pannambungan, Maros Regency

		Nutrient					Total
		Bad	Less	Good	More	Obesity	
Education	SD	0	1	0	0	0	1
		0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
	JUNIOR	0	4	5	0	0	9
		0.0%	44.4%	55.6%	0.0%	0.0%	100.0%
	SMA	1	17	27	4	0	49
		2.0%	34.7%	55.1%	8.2%	0.0%	100.0%
	S1	0	0	0	0	1	1
		0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
Total		1	22	32	4	1	60
		1.7%	36.7%	53.3%	6.7%	1.7%	100.0%
P value				0,322			

Based on table 9 shows that out of 60 respondents, the number of respondents who have elementary school parent education with malnutrition is 1 person. The number of respondents with junior high school parental education was 4 people who were malnourished, and 5 people who were well nourished. The number of respondents who have high school parents with malnutrition is 1 person, malnutrition 17 people, good nutrition 27 people and overnutrition as many as 4 people. The number of respondents with S1 education has an obese nutritional status of 1 person.

The Relationship of Parents' Education Level to the Intellectual Intelligence of Elementary School Children 219 Presidential Instruction Pannambungan Maros Regency

Table 10. The Relationship of Parents' Education to the Intellectual Intelligence of Respondents at SDN 219 Inpres Pannambungan, Maros Regency

		Average	Below average	Borderline	Mentally Defective	Total
Education	SD	0	0	0	1	1
		0.0%	0.0%	0.0%	100.0%	100.0%
	JUNIOR	3	3	1	2	9
		33.3%	33.3%	11.1%	22.2%	100.0%
	SMA	10	11	8	20	49
		20.4%	22.4%	16.3%	40.8%	100.0%
	S1	1	0	0	0	1
		100.0%	0.0%	0.0%	0.0%	100.0%
Total		14	14	9	23	60
		23.3%	23.3%	15.0%	38.3%	100.0%
P value				0,435		

Based on table 10 shows that out of 60 respondents, the number of respondents who have elementary school parental education with the intellectual intelligence of mentally defective children is 1 person. The number of respondents with junior high school parental education has an average of 3 children's intellectual intelligence, below the average of 3 people, borderline 1 person and mentally defective as many as 2 people. The number of

respondents with high school parental education who have an average intellectual intelligence is 10 people, below the average of 11 people, borderline 8 people and mentally defective as many as 20 people. The number of respondents who have S1 parental education with children's intellectual intelligence is, on average, 1 person.

The Relationship of Parents' Income Level to the Nutritional Status of Elementary School Children 219 Presidential Instruction Pannambungan Maros Regency

Table 11. The Relationship of Parents' Income to the Nutritional Status of Respondents at SDN 219 Inpres Pannambungan, Maros Regency

		Nutrient					Total
		Bad	Less	Good	More	Obesity	
Income	Low	1	19	14	2	0	36
		8.33%	33.33%	52.77%	5.56%	0.0%	100.0%
	Tall	0	3	18	2	1	24
		0.0%	8,33%	83.33%	4.17%	4.17%	100.0%
	Total		1	22	32	4	1	60
			5%	23,33%	65%	5%	1.7%	100.0%
	P value				0,000		

Based on table 11, it is known that from 60 respondents, the number of respondents who have low parental income with malnutrition is 1 person, malnutrition staus is 19 people, good nutritional status is 14 people and overnutrition status is 2 people. The number of respondents who had a high parental income with poor nutritional status was 3 people, good nutritional status 18 people, nutritional status more than 2 people and obesity as many as 1 person.

The Relationship of Parents' Income Level to Children's Intellectual Intelligence SDN 219 Presidential Instruction Pannambungan Maros Regency

Table 12 Relationship of Parents' Income to Respondents' Intellectual Intelligence at SDN 219 Inpres Pannambungan, Maros Regency

						Total
		Average	Below average	Borderline	Mentally Defective	
Income	Low	2	8	6	20	36
		0.0%	0.0%	0.0%	100.0%	100.0%
	Tall	12	6	3	3	24
		33.3%	33.3%	11.1%	22.2%	100.0%
Total		14	14	9	23	60
		23.3%	23.3%	15.0%	38.3%	100.0%
P value				0,162		

Based on table 12, it is known that from 60 respondents, the number of respondents with low parental income who have an average child's intellectual intelligence is 2 people, intellectual intelligence below average is 8 people, borderline intellectual intelligence is 6 people and mentally defective is 20 people. The number of respondents who had a high parental income with an average intellectual intelligence was 12 people, intellectual intelligence below the average was 6 people, borderline intellectual intelligence was 3 people and mentally defective was 3 people.

The Relationship of Nutritional Status to the Intellectual Intelligence of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Table 13. The Relationship of Nutritional Status to the Intellectual Intelligence of Respondents at SDN 219 Inpres Pannambungan, Maros Regency

Nutritional Status	Intellectual Intelligence									
	Average	∑	Below Average	∑	Borderline	∑	*Mentally Defective*	∑	Sum	∑
Malnutrition	0	0	0	0	0	0	1	1,7	1	1,7
Undernutrition	3	5,0	3	5,0	6	10,0	10	16,7	22	36,7
Good Nutrition	9	15,0	10	16,7	2	3,3	11	18,3	32	53,3
More Nutrition	1	1,7	1	1,7	1	1,7	1	1,7	4	6,7
Obesity	1	1,7	0	0	0	0	0	0	1	1,7
Total	14	23,3	14	23,3	9	15,0	23	58,3	60	100,0
P value	0,035									

Source : Primary Data 2021

From table 13, it is known that from 60 respondents, the number of respondents who have malnutrition status with mentally defective intellectual intelligence is 1 person (1.7%). The number of respondents with malnutrition status who had an average intellectual intelligence was 3 people (5.0%), the number of respondents who had undernourished status with below average intellectual intelligence was 3 people (5.0%), the number of respondents who had undernourished status with borderline intellectual intelligence was 6 people (10.0%) and the number of respondents with undernourished status who had mentally defective intellectual intelligenceas many as 10 people (16.7%). The number of respondents who had good nutritional status with average intellectual intelligence was 9 people (15.0%), the number of respondents who had good nutritional status with intellectual intelligence below average was 10 people (16.7%), the number of respondents who had good nutritional status with borderline intellectual intelligence was 2 people (3.3%) and the number of respondents with good nutritional status who had mentally defective intellectual intelligenceas many as 11 people (18.3%). The number of respondents who have more nutritional status with average intellectual intelligence is 1 person (1.7%), The number of respondents with more nutritional status who have intellectual intelligence below average is 1 person (1.7%), The number of respondents with more nutritional status who have borderline intellectual intelligence is 1 person (1.7%), The number of respondents who have more nutritional status with mentally defective intellectual intelligenceas many as 1 person (1.7%). The number of respondents with obese nutritional status who have intellectual intelligence is on average 1 person (1.7%). The results of the Spearmank Rank test above show a correlation value (-2.72) with a probability value or error level (p=0.035) smaller than a significant standard value (a=0.05). So H1 is accepted, which means that there is a relationship between nutritional status and children's intellectual intelligence in SDN 219 Presidential Instruction of Maros Regency.

Discussion

Children's Weight in Elementary School 219 Presidential Instruction Pannambungan Maros Regency

Based on Table 6, it shows that out of 60 respondents, the average weight of children at SDN 219 Inpres Pannambungan Maros Regency is 26 kg. Weight refers to the amount of protein, fat, water, and minerals present in the body. Weight is a composite measurement of total body size. There are several reasons why weight is used as an anthropometric parameter. These reasons include that weight changes are easily visible in a short period of time and describe the current nutritional status. Weight measurement is easy to perform and a measuring device for weighing weight is easy to obtain. Weight measurement requires a tool whose measurement results are accurate. To get an accurate weight measurement, there are several requirements for weight measuring instruments, including that the measuring device must be easy to use and carry, easy to get, the price of the measuring device is relatively cheap and affordable, the accuracy of the measuring device should be 0.1 kg (especially the tool used to monitor growth), the scale is clear and easy to read, safe enough to use, and the tool is always calibrated (Ministry of Health, 2017).

Height of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Based on Table 6 shows that from 60 respondents, the average height of children at SDN 219 Inpres Pannambungan, Maros Regency, was 130.6 cm. Height describes the size of bone mass growth that occurs as a result of nutritional intake. Therefore, height is used as an anthropometric parameter to describe linear growth. The increase in height or body length occurs over a long period of time, so it is often referred to as a result of chronic nutritional problems. The term height is used for children who are measured by standing, Height can be measured using microtoice (read: microtoa). The advantages of this measuring tool are that it has an accuracy of 0.1 cm, is easy to use, does not require a special place, and has a relatively affordable price. The disadvantage is that every time you are going to take a measurement, you have to install it on the wall first. (Ministry of Health, 2017).

Age of Elementary School Children 219 Presidential Instruction Pannambungan Maros Regency

In table 1 of 60 respondents, the characteristics of respondents based on age showed that more than half of the respondents were 10 and 11 years old, namely 27 people (45.0%), age plays a very important role in determining nutritional status, age increase must be directly proportional to weight gain and height increase. Misdetermination of age will lead to incorrect interpretation of nutritional status. The results of accurate weight and height weighing become meaningless if they are not accompanied by the right age determination (Septikasari & St, 2018). A mistake that often appears is the tendency to choose easy numbers such as 1 year, 1.5 years, 2 years. Therefore, the determination of the age of the child must be carefully calculated. The provisions used are 1 year is 12 months, 1 month is 30 days (Ministry of Health, 2017).

Nutritional Status of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Based on Table 7, it shows that out of 60 respondents, the nutritional status of more than half of the respondents had a good nutritional status, namely 32 people (53.3%). From the results of the data above, most of the children's nutritional status is good nutrition as many as 32 people (53.3%). According to the results of the study, it was found that based on the work of parents, almost half of the respondents had the status of farmer work, which was 36 people (60.0%). One of the respondents' nutritional status can be influenced, one of which is the work of parents related to income.

Income will affect the quality of meeting the needs of respondents. The role of parents is very influential in meeting the nutritional needs of respondents in supporting their growth and development, especially in meeting balanced nutritional needs, which include providing rice, side dishes, vegetables, fruits, and milk with excellent quantity and quality. In addition, parental education is also very related to the nutritional status of children because the higher the education, the higher the knowledge of parents in stimulating children so that the nutritional status of children is well maintained.

The level of parental education greatly influences a person to understand and receive information. Parents with low education will be more likely to maintain food-related traditions such as certain abstinences, making it difficult to receive new knowledge about nutrition. Parents with good education will understand how to raise children well, use health service facilities properly and maintain environmental cleanliness (Septikasari & St, 2018). Based on the data obtained in this study, almost half of the respondents with high school parental education were 49 0 (81.7%).

Thus, sufficient parental income, high parental education and adequate nutritional intake will be able to affect the nutritional status of children in SDN 219 Presidential Instruction Pannambungan Maros Regency which is poor and poor can be good, and the nutritional status of obesity can be better, so that with the fulfillment of good nutritional status in children in SDN 219 Presidential Instruction Pannambungan Maros Regency it is hoped that it can produce a superior successor of the nation and become a better generation healthy.

Intellectual Intelligence of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

The results of the study showed that from 60 respondents, 23 people (38.3%) were mentally defective intellectual intelligence. In the CIFT test conducted on respondents using a scale of 2 with a limit of 8-14 years of respondent age. Based on the results of tests that have been carried out on respondents, the average IQ score obtained is within the limit of 60.

Raymond B. Cattel (1949) developed the theory of the Culture Fair Intelligence Test (CFIT) to measure individual intelligence in a way that is planned to reduce the influence of verbal proficiency, cultural climate, and education level. This CFIT aims to measure general ability (General Ability) or called the G-Factor. The CFIT consists of 3 scales arranged in form A and form B in parallel. In this study, a scale of 2 was used specifically for children aged 8-14 years which consisted of 2 fill forms with 4 sub-tests each, namely, series (12 questions) for 3 minutes, classification (14 questions) for 4 minutes, matrix (12 questions) for 3 minutes and topology (8 questions) for 2 1/2 minutes.

Intellectual intelligence or better known as IQ (Intelligence Quotient) is a term used to describe basic abilities, such as the ability to reason, plan, solve problems, think abstractly, understand ideas, use language, grasp, and learn. Some people use this concept as a benchmark for a person's thinking ability. So often, children who have a high IQ score are said to be smarter than other children.

According to researchers, Intellectual intelligence is an individual's overall ability to think and act in a targeted way, as well as the ability to process and control the environment effectively. Intelligence is related to various abilities (such as the ability to plan and analyze things). Intelligence is the ability to think wholeheartedly and the ability to act in a directed manner, effectively process and control the environment. Intellectual intelligence is the ability to think, face new experiences or new problems, and adapt to current situations that indicate intelligent behavior. In other words, intelligent behavior is the application of products (results) and thinking strategies, through choice and adaptation to the environment, creatively and quickly overcoming new problems and adapting to the environment.

The Relationship of Nutritional Status to the Intellectual Intelligence of Elementary School Children 219 Presidential Instruction of Pannambungan Maros Regency

Based on the results of the study of 60 respondents, the number of respondents who had malnutrition status with mentally defective intellectual intelligence was 1 person (1.7%). The number of respondents with malnutrition status who had an average intellectual intelligence was 3 people (5.0%), the number of respondents who had undernourished status with below average intellectual intelligence was 3 people (5.0%), the number of respondents who had undernourished status with borderline intellectual intelligence was 6 people (10.0%) and the number of respondents with undernourished status who had mentally defective intellectual intelligenceas many as 10 people (16.7%). The number of respondents who had good nutritional status with average intellectual intelligence was 9 people (15.0%), the number of respondents who had good nutritional status with intellectual intelligence below average was 10 people (16.7%), the number of respondents who had good nutritional status with borderline intellectual intelligence was 2 people (3.3%) and the number of respondents with good nutritional status who had mentally defective intellectual intelligenceas many as 11 people (18.3%).

The number of respondents who have more nutritional status with average intellectual intelligence is 1 person (1.7%), The number of respondents with more nutritional status who have intellectual intelligence below average is 1 person (1.7%), The number of respondents with more nutritional status who have borderline intellectual intelligence is 1 person (1.7%), The number of respondents who have more nutritional status with mentally defective intellectual intelligenceas many as 1 person (1.7%). The number of respondents with obese nutritional status who have intellectual intelligence is on average 1 person (1.7%). The results of the Spearmank Rank test above show a correlation value (-2.72) with a probability value or error level (p=0.035) smaller than a significant standard value (a=0.05). So H1 is accepted, which means that there is a relationship between nutritional status and children's intellectual intelligence in SDN 219 Presidential Instruction of Maros Regency.

Based on the results of the research carried out, it was found that there was a relationship between nutritional status and children's intellectual sufficiency. Nutritional status will affect a person's level of intelligence and ability to attend classes at school, so people with good nutritional status will have the ability to capture knowledge better and faster and can also achieve good results in school. On the other hand, if a person has a poor nutritional status, it will have an impact on intelligence, so it is less optimal in capturing lessons at school so that learning achievement is not good (Sumiaty, 2018).

This is as expressed by researchers who stated that food is very related to the needs of the child's body, especially for school children who are experiencing the stage of growth and physical development and intelligence. If food does not contain enough of the nutrients needed, and this situation lasts for a long time, it will cause metabolic changes in the brain so that it results in the inability of the brain to function normally. Thus, normal nutritional status is very related to children's intellectual intelligence. This is evidenced by the results of a study that states that there is a relationship between nutritional status and children's intellectual intelligence in SDN 219 Inpres Pannambungan, Maros Regency.

From the results of the research that has been carried out, it was obtained that 32 people had good nutritional status with 11 people mentally defective. This states that nutritional status based on the BMI/U index is not the only factor that affects children's intelligence because there are many other factors that are not researched in this study, such as the environment, psychological aspects, and learning factors. A student who is conserving (apathetic) to science tends to take a simple and in-depth approach to learning. On the other hand, students who are highly intelligent and receive positive encouragement from their

parents, will choose a learning approach that is more concerned with the quality of learning outcomes. The difference in research results may be due to differences in the research population and the size of the population. In addition, the assessment of nutritional status can not only be determined by anthropometry but can also be assessed based on laboratory tests (Maleke et al., 2015).

In the research of Vero Dwinta Aditiur. 2019 with the title "The Relationship between Nutritional Status and IQ Scores of Children Aged 6-10 Years". Research Methods Using a cross-section design on 97 students at SDN 10 Trans Sejadis aged 6-10 years. The measurement of nutritional status was carried out by measuring TB, BB, LLA, and the results of the IQ test were taken from the secondary data of the measurement results by the school psychologist. The analysis of the relationship between nutritional status and IQ score was carried out by the Chi-square test with the SPSS version 16 application. The results of the univariate analysis showed that 11.3% of children had poor nutritional status, and 16.5% had a below-average IQ. Bivariate analysis showed that there was a relationship between nutritional status and children's IQ scores (p = 0.003). Conclusion There is a relationship between nutritional status and IQ scores in children aged 6-10 years. Children who have more or less nutritional status have a low IQ.

In the study, Erna Susilowati, Elfi Quyumi Rahmawati. 2020 with the title "The effect of nutritional status on the intellectual potential of school-age children at SDIT Bina Insani Lirboyo Kediri". This study is an observational research with a cross-sectional design, a sample size of 32 children of grade 6 school age at SDIT Bina Insani Kota Kediri, and a simple random sampling method with data analysis using cross tables. Nutritional status data was obtained by measuring weight and age as well as body mass index. Stunting data was presented with a Z-score value of height by age (TB/U) IQ data was obtained from the Intelligence test. The Independent Variable in the study is nutritional status and the dependent variable in this study is the child's IQ test score. The results of the study using Spearman rho showed a value of 0.016 which showed an influence between nutritional status and the intellectual potential of school-age children.

Based on the research conducted in line with previous research. Where there is a relationship between nutritional status and intellectual intelligence in children. However, in the research carried out, the relationship between the two is weak because there are other factors that have a stronger relationship.

The Relationship between Parents' Education Level and Children's Nutritional Status of SDN 219 Pannambungan Presidential Instruction Maros Regency.

Based on table 9 shows that out of 60 respondents, the number of respondents who have elementary school parent education with malnutrition is 1 person. The number of respondents with junior high school parental education was 4 people who were malnourished, and 5 people who were well nourished. The number of respondents who have high school parents with malnutrition is 1 person, malnutrition 17 people, good nutrition 27 people and overnutrition as many as 4 people. The number of respondents with S1 education has an obese nutritional status of 1 person. The results of the Spearmank Rank test showed that the level of education on nutritional status had a value (p=0.322).

The role of mothers with low education will further maintain food-related traditions and make it more difficult to receive new information about nutrition, and vice versa. The level of education of mothers greatly affects the ability to receive information about nutrition. With nutrition education, it is hoped that good and healthy eating habits will be created so that they can know the nutritional content, sanitation, and knowledge related to other dietary patterns.

The results of this study are not in line with the opinion of Akben-Selcuk (2014), who stated that student learning outcomes are closely related to parents' level of formal education. Parents with a higher level of formal education have more ability to shape their children in learning compared to parents with a lower level of education.

The Relationship between Parents' Income and the Nutritional Status of Children in SDN 219 Presidential Instruction Pannambungan Maros Regency.

Based on Table 11, it is known from 60 respondents that the number of respondents who have low parental income with malnutrition is 1 person, poor nutrition status 19 people, good nutritional status 14 people, and overnutrition status as many as 2 people. The number of respondents who had a high parental income with poor nutritional status was 3 people, good nutritional status 18 people, nutritional status more than 2 people and obesity as many as 1 person. The results of the Spearmank Rank test showed that the income level to nutritional status had a value (p=0.000).

The level of income also determines what type of food will be purchased with additional money. The higher the income, the greater the percentage of the income used to buy fruits, vegetables and various other types of foodstuffs. So, income is an important factor in quantity and quality. Between income and nutrition, there is clearly a beneficial relationship. If the income obtained is low, the food consumed does not necessarily contain nutrients.

Parents of students tend to be as they are in serving food for the family. Thus, children who grow up in poor families are most prone to malnutrition. Among all family members, the youngest child is usually the most affected by food insecurity. If the size of the family increases, the food for each child decreases, and many parents do not realize that very young children need relatively more food than older children.

Thus young children may not be fed enough. Thus, sufficient food consumption, both quality and quantity, for each family member is very important to achieve good nutrition (Amirudin & Nurhayati, 2014). In certain cultures, access to nutritious food takes precedence between husbands and wives. Therefore, girls are educated to prioritize the interests of boys in all things, including to eat first. So girls' access to balanced nutrition is vulnerable to being obtained adequately (Pohan, 2019).

Food must be distributed to meet the nutritional needs of everyone in the family. Children must get most of the foods that are rich in energy, protein and other nutrients that are sufficient every day to meet the needs of the body. In certain cultures, access to nutritious food takes precedence between husbands and wives. Therefore, girls are educated to prioritize the interests of boys in all things, including to eat first. Women's access to balanced nutrition is vulnerable to being obtained adequately (Amirudin & Nurhayati, 2014).

The Relationship between Parents' Education Level and Children's Intellectual Intelligence SDN 219 Presidential Instruction Pannambungan Maros Regency.

Based on table 10, it shows that out of 60 respondents, the number of respondents who have elementary school parent education with mentally defective children's intellectual intelligence is 1 person. The number of respondents with junior high school parental education has an average of 3 children's intellectual intelligence, below the average of 3 people, borderline 1 person and mentally defective as many as 2 people. The number of respondents with high school parental education who have an average intellectual intelligence is 10 people, below the average of 11 people, borderline 8 people and mentally defective as many as 20 people. The number of respondents who have S1 parental education with children's intellectual intelligence is on average 1 person. The results of the Spearmank Rank test showed that the level of education for intellectual intelligence had a value (p=0.435).

There are several factors that can affect a child's intellectual intelligence, such as parents' work and parents' level of education. Parents consist of mothers and fathers are the ones who play a role in raising children. Parents with a higher level of education will have more knowledge in parenting which will later have an impact on a child's cognitive ability. However, parental education is not a strong factor that can affect intellectual intelligence; rather, it is a factor that affects nutritional and genetic status. In line with the research conducted by researchers with the title The Relationship between Parents' Education Level and the Learning Achievement of Class V A Students at SDN Rejodani Madurejo Prambanan Sleman Yogyakarta in 2012/2013. There was no significant relationship between parental education and child achievement with a p-value of 0.395.

The Relationship between Parents' Income and Children's Intellectual Intelligence SDN 219 Pannambungan Presidential Instruction Maros Regency.

Based on table 12, it is known that from 60 respondents, the number of respondents with low parental income who have an average child's intellectual intelligence is 2 people, intellectual intelligence below the average is 8 people, borderline intellectual intelligence is 6 people and mentally defective is 20 people. The number of respondents who had a high parental income with an average intellectual intelligence was 12 people, intellectual intelligence below the average was 6 people, borderline intellectual intelligence was 3 people and mentally defective was 3 people.

The results of the Spearmank Rank test show that the level of income for intellectual intelligence has a value (p=0.162). In theory, The researchers have proven a significant correlation between socioeconomic status and intellectual intelligence. Many low-income parents have difficulty providing an environment that can intellectually stimulate their children. This can be the cause of a child's low level of intelligence.

In line with a study conducted by Yuliwianti (2017) titled The Relationship between Nutritional Status and Intellectual Intelligence in Elementary School Children at SD Kanisius Pugeran in 2016. The statistical results in this study showed that the income variable of parents (mother and father) had no relationship with children's intelligence with a p-value of 0.89 (RP= 0.90, 95% CI 0.18-4.42) for maternal income and 0.99 (95% CI 0.76-24.3) for father's income.

CONCLUSION

Based on the purpose of the research that has been carried out, namely regarding the relationship between nutritional status and children's intellectual intelligence, it can be concluded that: The average weight of children in SDN 219 Inpres Pannambungan is not in accordance with the growth period, which is 26.04 kg, The average height of children in SDN 219 Inpres Pannambungan is not in accordance with the growth period, which is 130.6 cm, The average age of children in SDN 219 Inpres Pannambungan is in accordance with the school period in grades 4-5, namely 10 and 11 years as much as 45% according to the school period, Nutritional status of children of elementary school 219 Presidential Instruction Pannambungan Maros Regency Almost half of the respondents with good nutritional status were 32 people (53.3%).

Children's Intelligence of SDN 219 Presidential Instruction Pannambungan Maros Regency Almost half of the respondents were mentally defective as many as 23 people (38.3%), There was a significant relationship between nutritional status and intellectual intelligence of elementary school children 219 Presidential Instruction Pannambungan Maros Regency, There was no relationship between parental education and the nutritional status of children in elementary school 219 Presidential Instruction Maros Regency, There was a relationship between parental income and nutritional status in elementary school children in

SDN 219 Presidential Instruction Pannambungan, There is no relationship between parental education and children's intellectual intelligence of SDN 219 Pannambungan Presidential Instruction Maros Regency, There is no relationship between parental income and children's intellectual intelligence SDN 219 Pannambungan Presidential Instruction Maros Regency.

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