



THE RELATION OF DEWORMING WITH NUTRITIONAL STATUS OF ELEMENTARY SCHOOL STUDENTS IN SICANANG

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ARTICLE INFO	ABSTRACT
Published: November 28th, 2022 Keywords: nutritional status, schoolchildren, worms	<i>Related to environmental sanitation and behavior which results in a decrease in health conditions, nutritional status, intelligence levels, and productivity of sufferers, causing economic losses. helminthiasis with BMI/U nutritional status, using a descriptive correlation design with a cross-sectional approach. Sample 103 students of SD Negeri 066669 (IV number 42 and V total 61) with purposive sampling technique, namely inclusion and exclusion criteria. Data analysis was univariate analysis with frequency distribution, and bivariate analysis used Spearman rank ($p < 0.05$). Most helminthiasis were in the non-wormed category 87.4%. There was a significant relationship between helminthiasis and nutritional status BMI/U p value = 0.002. That there is a significant correlation between helminthiasis and the nutritional status of BMI/U due to personal hygiene and a slum environment, especially the lack of clean and healthy living behavior (PHBS).</i>
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INTRODUCTION

Nutritional problems astronomically affect a person's health position through several causes including illness, disability, death, deduction of pocket money for family needs, terrain that does not support health, and the status of nutritional needs demanded by one's body. Input as a source of vitamins and minerals at the source to be consumed if insufficient in the proportion of standard levels of nutritional acceptability will affect (Wiyono & Harjatmo, 2019).

The problem of malnutrition is still a problem in developing countries around the world, including Indonesia. In 2018, the number of malnourished toddlers in Indonesia was found to be still very high. In the TB/U (height/age) category, children aged 5-12 years experienced malnutrition (and very short) of 23.6%. In the BMI/U (Body Mass Index/Age) category, the malnutrition status (and very thin) in children aged 5 to 12 years is 9.2%.

Based on the results of SSGI 2021, the prevalence of stunting decreased from 27.7% in 2019 to 24.4%, and the prevalence of Wasted also decreased from 7.4% in 2019 to 7.1%. However, the prevalence of skinny increased from 16.3% to 17% (Kementerian Kesehatan Republik Indonesia, 2021).

Malnutrition is a condition of malnutrition suffered by someone. A person's nutritional status is assessed through anthropometric measurements: weight (BB), height (TB), upper arm circumference (LLA), head circumference (LK), and chest circumference (LD). Factors that hinder the achievement of nutritional adequacies, such as personal hygiene factors of children, nutritional deficiencies, and comorbidities such as infections (Waryana, 2010).

The definition of helminth infection according to the World Health Organization (2012) (2011) is Infection with one or more parasites belonging to the class of intestinal nematodes. This

universal occurs in tropical, subtropical, and humid climates and areas with poor sanitation and hygiene. This disease is the most common infectious disease that affects the world's weak economy and is found in various age groups.

Helminthiasis belongs to the group of diseases called neglected tropical diseases (NEL). It is a neglected disease because it has no direct impact. Helminthiasis infection can occur in all age groups, but its prevalence is higher in children than in adults. The child is at a stage of development that is prone to various diseases due to his strong body resistance. Helminth infections can cause various diseases, including diarrhea, anemia, malnutrition, and stunted growth. Helminth infections are closely related to lifestyle and hygiene (Konoralma et al., 2022).

The impact of helminthiasis is a complaint that results in malnutrition that the body obtains through reduction due to immersion by worms. Adult worms in the body of living things will secrete macro and micro substances such as carbohydrates, proteins, and iron, thus impacting a person's nutritional status, especially in children who witness a productive age in the literacy process in the academy field (Directorate General of PP & PL, 2012).

Worms reduce patient health, nutrition, intelligence, and productivity, resulting in financial losses. Therefore, you should take precautions. One of them is the early detection of helminthiasis infection in the risk group (Regina et al., 2018).

The average value of all anthropometric indices is lower in children infected with worms, this strongly indicates that intestinal worm infections and malnutrition occur in children living in Dibanda and are major health problems that need to be addressed immediately to reduce morbidity and mortality (Mbuh & Nembu, 2013).

Deworming is a disease caused by infection with worms from both the aquatic and soil environment contaminated with eggs or helminth larvae. There are three types of nematodes that most often cause infection in humans: roundworms (*Ascaris lumbricoides*), whipworms (*Trichuris trichiura*), and hookworms (*Necator americanus* and *Ancylostoma duodenale*) (Satriawan et al., 2020).

Indonesia's geographical position as a very humid tropical country provides a good environment for worm cultivation. The Ministry of Health of the Republic of Indonesia (Depkes RI) states that the prevalence of parasites is between 40% and 60% in all age groups in Indonesia. The prevalence of helminthiasis infection in Indonesia is still relatively high, especially in poor and densely populated areas with poor sanitation, a lack of toilets, and inadequate clean water facilities (Prasetyo & Prasetyo, 2018).

Primary school students in Asia and Africa have the same nutritional problems and the economic level of a country cannot be the single variable to describe the burden of stunting, micronutrient deficiencies, and helminthiasis infection in elementary school children (Satria, 2018).

School students and school-aged people are particularly at risk of infection. About 270 million preschoolers and 550 million children of their school-age live in places of transmission of helminth infections. In Indonesia, STH infection is one of the main public health problems, with a prevalence of 45% to 65% (Sari et al., 2020).

According to the results of the study, students infected with STH intestinal worms, namely most of the students, were classified as having good handwashing habits by 71.74%, while 28.26% were classified as having bad hand-washing habits. There is a meaningful relationship between hand-washing habits and the incidence of Soil-Transmitted Helminths intestinal worm infection (Rahmawati, 2019).

Based on this explanation, the author is interested in conducting research related to the variables of disability and nutritional status in children with the title "The Relation of Deworming with Nutritional Status of Elementary School Students in Sicanang."

METHOD

This study uses a correlation description design with a cross-sectional approach that aims to determine whether there is a relationship between free variables and bound variables (Notoatmojo, 2012). The population in this study was all students of 066669 State Elementary School in Belawan Sicanang Village from grade 1 – to class VI totaling 288 students. The sample of this study was students of SD Negeri 066669 Belawan Subdistrict, Sicanang class IV as many as 42 students and class V as many as 61 students, a total sample of 103 students selected with purposive sampling techniques using inclusion and exclusion criteria. This research was conducted at an elementary school in Belawan Sicanang Village in January 2022. UPT State Elementary School O66669 is one of the education with elementary school level in Belawan Pulau Sicanang Jalan Kelapa, Medan District, Belawan City, Medan City, North Sumatra. Under the auspices of the Ministry of Education and Culture. This school is one of the elementary schools that is often submerged by seawater during the Belawan tide season.

The data collected, namely nutritional status data, was obtained by measuring students using tools, namely digital weight scales and microtomes. Then the results obtained were entered into the WHO AnthroPlus application to get the z-score value of the Body Mass Index according to age and then the results of the Z-s value core compared to the BMI/U nutritional status category based on the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2020 concerning Child Anthropometric Standards. Socio-demographics. Socio-demographic data were obtained based on interviews using research questionnaires. Education level with low education category (if parents do not finish elementary school/finish elementary school/finish junior high school) and higher education (if parents graduate from high school/college) work with working and non-working categories. Based on the 2022 Medan City MSE, the high-income category $\geq$ IDR 3,370,000.00 and low-income $<$ IDR 3,370,000.00. A child with ideal (< 2) and non-ideal (≥ 2) categories. Data on consumption patterns were carried out using 24-hour food recall in each child and then analyzed the nutritional content using the NutriClin4 computer application or DKBM (List of Food Ingredient Consumption) Indonesia. After obtaining the value of nutrients that have been corrected by body weight, calculations are then carried out to determine the level of nutritional adequacy.

Helminthiasis data was obtained from stool examination. Before conducting a stool examination, the fecal pot that has been given the respondent's code/name is distributed first to the

children as a stool container before the laboratory examination. Specimens should be immediately examined on the same day so that the helminth eggs do not break down or hatch into larvae. If it is not possible, feces should be given 5-10 percent formalin until submerged. Fecal examination can be done as follows: The principle is that with the addition of eosin 2% / Lugol, microorganisms and other elements in the stool will be seen more clearly. The goal is to see abnormalities in the stool both macroscopically and microscopically. The data analysis carried out, namely univariate analysis, was used to see the proportion of research data variables such as respondents' characteristics, socio-demographic data, consumption patterns to show nutrient intake, helminthiasis to determine the presence or absence of worms in the child's body and anthropometry of BMI/U children to show nutritional status in children. The presentation of data can be in the form of narration and a table. Bivariate analysis by Spearman rank test was used to find relationships and test hypotheses between two or more variables.

RESULT AND DISCUSSION

Characteristics of Respondents

Table 1. Characteristics of Respondents by Age, Gender, Number of Family Members, Parental Education, Parental Occupation, and Parental Income

Variable	N	(%)
Age		
9 Years	11	10,7
10 Years	55	53,4
11 Years	33	32,0
12 Years	4	3,9
Gender		
Man	57	55,3
Woman	46	44,7
Number of Children		
Ideal (≤ 2)	71	68,9
Not Ideal (ideal > 2)	32	31,1
Parental Education		
Low Education (Not finished elementary school / finished elementary school / finished junior high school)	42	40,8
Higher Education (Graduated from High School/Graduated from College)	61	59,2
Parental Work	81	78,6
Self-employed/private employees	19	18,4
Laborer	3	2,9
Fisherman		
Parents' Income	1	1,0

High Income ($\geq$ IDR 3,370,000.00)	102	99,0
Low Income ($<$ IDR 3,370,000.00)		

Source: Primary Data

Table 1, the maximum age at 12 years is 3.9%, the male sex is 55.3%, the minimum age at 11 years is 32.0% and at the age of 9 years is 10.7%, the female sex is 44.7% a member of the ideal category (≤ 2) which is 68.9%. The best high school education/equivalent is 59.2%, most of the self-employed professions are 78.6%, and the most with low income $<$ Rp 3,370,000.00 which is 99.0%. Meanwhile, the minimum number of members in the non-ideal category (> 2) is 31.1% with little education, namely in low education (not finishing elementary school/graduating from elementary school / graduating from junior high school) at 40.8% and a little at high income $\geq$ Rp 3,370,000.00, which is 1.0%.

Analyzes Univariate

Table 2. Distribution of Nutritional Status by Z- Score BMI/U

Variable	N	(%)
Malnutrition (<-3 SD)	0	0
Malnutrition (-3 SD SD <-2 SD)	5	4,9
Good Nutrition (-2 SD to $+1$ SD)	89	86,4
More Nutrition ($+1$ SD to $+2$ SD)	6	5,8
Obesity ($>+ 2$ SD)	3	2,9

Source: Primary Data

Based on the results of a survey of 103 students of SDN Kalurahan Belawan Sicanang 066669, Table 2 shows that the most in good nutritional status are 89 (86.4%), more status is 6 (5.8%), nutritional status is less than 5 (4.9%) and the least is in poor nutritional status, namely 0 (0%).

The results of the study on elementary school students in Jimma City, Southwest Ethiopia found the prevalence of nutritional status (BMI/U) was deficient and nutritional status (TB/U) was short by 6.9% and 21% (Mekonnen et al., 2020).

In line with the results of the study on students of SDN Abepantai, Jayapura City, it was found that the prevalence of nutritional status (BMI/U) was less than 6.7%, nutritional status (BB/U) was thin at 23.2%, and nutritional status (TB/U) was short at 23.3% (Wasaraka, 2015).

In contrast to the research at SDN 2 Barabai Darat, South Kalimantan, the prevalence of nutritional status (BMI/U) was less than 89.4%, the nutritional status (BB/U) was thin at 25.9%, and the nutritional status (TB/U) was short at 41.2% (Azizaturridha et al., 2016).

Table 3. Distribution of Disability

Variable	N	(%)
Deworming (<i>Trichuris t.</i>)	13	12,6
No Deworming	90	87,4

Source: Primary Data

Based on a survey of 103 students at SD Negeri 066669 Belawan Village, Medan, most of them were not disabled and 12.6% suffered from *Trichuris trihiura* worms, according to data obtained from the routine fecal analysis. The same research was conducted on students of SDN 200 Kemasrindo Village, Kertapati District, Palembang City, and obtained a prevalence of disability of 27.1% (Annisa et al., 2018). The prevalence of helminthiasis was 8.1%. This difference can be due to various factors such as environmental sanitation, personal hygiene, and socioeconomics (Novianty et al., 2018).

Bivariate Analysis

Table 4. Relationship of Disability with Nutritional Status Based on Z-Score BMI/U (n =103)

No	Variable	Number (n)	Correlation Value	p-value	A
1.	Deworming Nutritional Status	103	0,398**	0,002	0,05

Source: Primary Data

Based on Table 4, the results of the Spearman rank test to determine the level of relationship between the free variable and the bound variable that there is a relationship between disability and nutritional status ($p\text{-value} = 0.002 < 0.05$) in children of State Elementary School 066669 in Belawan Sicanang Village.

This result is in line with research on students at SD Muhammadiyah Jampu with a p-value of 0.001 which means that there is a relationship between nutritional status and helminthiasis The relationship between Diabetes and Child Nutritional Status at Muhammadiyah Jampu Elementary School, Lanrisang District, Pinrang Regency (Astuti et al., 2019).

This result is inversely proportional to the study on elementary school students in Bandarharjo Village, Semarang with a p-value of 1,000 which means that there is no relationship between nutritional status and helminthiasis in these students (Astuti et al., 2019).

CONCLUSION

In this study, there was a meaningful relationship between pinworm disease and nutritional status (BMI / U Z-score) in children of SD Negeri 066669 in Medan Belawan Si Village because of parents' lack of attention to personal hygiene and slum environment, especially healthy clean living behavior (PHBS).

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