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The Relationship Between Nutritional Status, Physical Activity and Menstrual Duration with the Incidence of Anemia in Adolescent Girls at SMA Negeri 1 Boliyohuto

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ABSTRACT

Anemia occurs due to various causes, such as iron deficiency, folic acid deficiency, vitamin B12 and protein. Anemia is directly caused by insufficient production/quality of red blood cells and blood loss either acutely or chronically. The formulation of the problem is whether there is a relationship between nutritional status, physical activity and the length of menstruation with the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. This study aims to analyze the relationship between nutritional status, physical activity and menstrual duration with the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The type of research is observational analysis with a research design using Cross Sectional. The population is active students in grade XI at SMA Negeri 1 Boliyohuto with a purposive sampling technique totaling 124 students. Data analysis uses Spearman Correlation. The results of the analysis of nutritional status in adolescent girls were the most common nutritional status, which was 63 students (50.8%). The most physical activity in adolescent girls was moderate physical activity as many as 82 students (66.1%). The duration of menstruation in adolescent girls was 70 students (56.5%). The results of Spearman's Correlation analysis for nutritional status were obtained with a p-value of 0.000 (p value < 0.005) with a value of r = 0.437, a physical activity p-value of 0.010 (p value < 0.005) with a value of r = -0.230 and a duration of menstruation with a p-value of 0.020 (p value < 0.005) with a value of r = 0.209. The conclusion was that there was a relationship between nutritional status, physical activity, and the duration of menstruation with the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. It is hoped that this research can increase the knowledge of adolescent girls about the relationship between nutritional status, physical activity and menstrual duration and have a positive impact.

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INTRODUCTION

Adolescence is a transition phase from childhood to adulthood. Changes in growth and development such as height gain, hormonal changes and sexual maturity as well as cognitive and emotional. Data in Indonesia shows that around 15% of the population is between 10-19 years old, and adolescents 10-24 years old in Indonesia has increased to 63 million people or about 27% of the total population. Indonesia is one of the developing countries that faces nutritional problems in the adolescent age group.

The nutritional status of adolescents who are under- or excessive is a public health problem. The emergence of adolescent nutrition problems is basically due to the wrong eating consumption behavior, namely the balance between nutritional consumption and the recommended nutritional adequacy.

The adolescent phase is a phase that is vulnerable to health risks because in the adolescent phase, there is rapid body development so that sufficient sources of nutrition are needed. However, the need for adequate nutrition is often ignored by teenagers so that there will be several health problems caused such as the incidence of anemia in adolescents.

The prevalence of anemia for women (≥15 years old) globally according to World Health Organization (WHO) data in 2021 almost one in three women aged 15-49 years as many as 36% suffer from anemia, while the prevalence of anemia in Southeast Asia is around 45.7% or 182 million people aged 15-20 years at risk of anemia (Arisnawati & Zakiudin, 2018). According to Riskesdas, (2018) The number of anemia in adolescent girls in Indonesia increased by 48.9%, in the proportion of the age group of 15-24 years.

Based on data from the Gorontalo Regency Health Office (2022), the number of anemia was 94,090 people, and in 2023 the number of anemia increased to 10,278. Meanwhile, the number of data on adolescent girls in Boliyohuto who suffer from anemia is 2,027 people (49%).

Based on data from the health center, it shows that the number of anemia in Madrasah Aliyah Muhammadiyah Boliyohuto is (16%), SMK Cendekia Boliyohuto is (16%) and SMA Negeri 1 Boliyohuto is (20.1%).

Factors that cause anemia in adolescent girls are insufficient iron intake, irregular diet and irregular menstrual days. At the time of menstruation, the level of Hb (Hemoglobin) in the blood is lower than usual, because during menstruation, adolescent girls will lose blood which means removing iron in the blood, so that the longer the menstrual day in adolescent women, the more blood will come out and the more iron loss that causes anemia.

Anemia that is not handled properly can have various impacts on adolescents, including lowering the body's immune system so that it is susceptible to diseases, decreased activity and learning achievement due to reduced concentration (Wahyu, 2016). Efforts that can be made to prevent and overcome anemia are, increasing iron consumption to replace iron wasted during menstruation using natural iron, by counseling nutrition to the community or parents who have adolescents or adolescents themselves, increasing the content of iron, folic acid, vitamin A, and important amino acids in foods that are commonly consumed by the intended group, As well as giving iron and folic acid supplements regularly to adolescent girls suffering from anemia during a certain period, aiming to increase hemoglobin levels quickly and effectively.

Anemia is characterized by a decrease in iron reserves which is reflected in a reduced serum concentration of ferritin. Furthermore, there is an increase in Fe absorption due to the decline in the body's Fe level. The manifestation of this state gives rise to Fe deficiency erytripoiesis (Fe deficiency without anemia), Fe reserves are depleted and Hb production is disturbed. Although the Hb concentration is above the cut off point of the anemia category, there is a reduction in saturation transferrin, namely the supply of Fe to the bone marrow is insufficient, the increase in the concentration of erythrocyte protoporphyrin due to the lack of Fe to form Hb. At the end of the Fe deficiency stage, anemia is characterized by an Hb concentration below the normal range or < 12 g/dL (Khairani, 2019).

Based on the results of measurements related to anemia conducted by researchers, it shows that out of 10 students, as many as 7 students (70%) have anemia (Hb <12gr/dL), as many as 3 students (30%) have no anemia (Hb 12-14gr/dL).

Based on the results of measurements related to nutritional status, it shows that out of 10 students, as many as 2 students (20%) have a very thin weight, as many as 5 students (50%) have a normal weight, as many as 3 students (30%) have a thin body weight.

Based on the results of interviews and observations related to physical activity conducted by the researcher, it shows that out of 10 students, as many as 2 students (20%) have physical activity with a light category, as many as 5 students (50%) have physical activity with a moderate category, and 3 students (30%) have a physical activity with a heavy category.

Based on the results of interviews and observations of the length of menstruation conducted by the researcher, it was shown that out of 10 students, as many as 8 students (80%) had a normal menstrual period (7 days), as many as 1 student (10%) had a menstrual duration with a long category (8 days), and 1 student (10%) had a short menstrual period (2 days).

Based on this background, it attracted the interest of researchers to conduct a study entitled "The Relationship between Nutritional Status, Physical Activity and Menstrual Duration with the Incidence of Anemia in Adolescent Girls at SMA Negeri 1 Boliyohuto".

RESEARCH METHODS

This type of research is quantitative using the type of observational analytical research with an approach cross sectional. In this study, the independent variables were nutritional status, physical activity and menstrual duration, while the dependent variable was the incidence of anemia. The population is young women students in grade XI at SMA Negeri 1 Boliyohuto which totals 179 students with engineering Purposive Sampling A total of 124 students.

RESULTS

Characteristics of Respondents

Table 1. Distribution of respondent characteristics based on age among adolescent girls at SMA Negeri 1 Boliyohuto

Age (Years)	Sum	
	n	%
15 Years	6	4.8
16 Years	46	37.1
17 Years	59	47.6
18 Years	11	8.9
19 Years	2	1.6
Sum	124	100.0

Source : Primary Data, 2024

Table shows That the distribution of respondent characteristics based on age in adolescent girls is the most respondents with the age of 17 years, which is 59 students (47.6%), while a small part of them are at the age of 19 years, which is as many as 2 students (1.6%).

Univariate Analysis

Table 2. Distribution of respondent frequencies based on nutritional status among adolescent girls at SMA Negeri 1 Boliyohuto

Nutritional Status	Sum	
	n	%
Very Skinny	23	18.5
Thin	14	11.3
Usual	63	50.8
Fat	16	12.9
Obese	8	6.5
Sum	124	100.0

Source : Primary Data, 2024

Tablel shows that the frequency distribution based on nutritional status in adolescent girls is in the normal category, which is 63 students (50.8%), while a small part is in the obese category of 8 students (6.5%).

Table 3. Distribution of respondent frequency based on physical activity among adolescent girls at SMA Negeri 1 Boliyohuto

Physical Activity	Sum	
	n	%
Light	41	33.1
Keep	82	66.1
Heavy	1	0.8
Sum	124	100.0

Source : Primary Data, 2024

The table shows that the frequency distribution based on physical activity among adolescent girls is in the moderate category of 82 students (66.1%) while a small part of them are in the severe category of 1 student (0.8%).

Table 4. Distribution of respondent frequency based on menstrual length in adolescent girls at SMA Negeri 1 Boliyohuto

Duration of Menstruation (Day)	Sum	
	n	%
3 Days	2	1.6

Duration of Menstruation (Day)	Sum	
4 Days	2	1.6
5 Days	12	9.7
6 Days	11	8.9
7 Days	70	56.5
8 Days	9	7.3
9 Days	4	3.2
10 Days	8	6.5
11 Days	1	0.8
13 Days	1	0.8
14 Days	4	3.2
Sum	124	100.0

Source : Primary Data, 2024

The table shows that the frequency distribution based on the length of menstruation in adolescent girls is the most at 7 days as many as 70 students (56.5%) while a small part is at 11 and 13 days as many as 1 student (0.8%).

Table 5. Distribution of respondent frequency based on the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Incidence of Anemia	Sum	
	n	%
Anemia	68	54.8
No Anemia	56	45.2
Sum	124	100.0

Source : Primary Data, 2024

Table shows that the frequency distribution according to the incidence of anemia in adolescent girls is in the anemia category of 68 students (54.8while a small part of them are in the category of not being anemic as much as 56 students (45.2%).

Bivariate Analysis

Table 6. *Spearman's correlation test of* the relationship between nutritional status and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Nutritional Status	Event Anemia			r	*P value*
	Anemia	No Anemia	n		
Very Skinny	22	1	23	0,437	0,000
Thin	13	1	14		
Usual	23	40	63		
Fat	8	8	16		
Obese	2	6	8		
Sum	68	56	124		

Source : Primary Data, 2024

The table shows that from the calculation using the spearman correlation test between nutritional status and the incidence of anemia, *a p value* of 0.000 (*p value* < 0.005) was obtained with a value of r = 0.437. This shows that there is a significant relationship between nutritional status and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows the direction of moderate strength.

Table 7. *Spearman's correlation test of* the relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Physical Activity	Incidence of Anemia			r	*P value*
	Anemia	No Anemia	n		
Light	16	25	41	-0,230	0,010
Keep	51	31	82		
Heavy	1	0	1		
Sum	68	56	124		

Source : Primary Data, 2024

The table shows that from the calculation using the spearman correlation test between physical activity and the incidence of anemia, *a p value* of 0.010 (*p value* < 0.005) with a value of r = -0.230 was obtained. This shows that there is a significant relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows there is an opposite relationship with low strength.

Table 8. *Spearman's correlation test of* the long relationship between menstruation and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

ration of Menstruation (Day)	Incidence of Anemia			r	*P value*
	Anemia	No Anemia	n		
3 Days	2	0	2	0,209	0,020
4 Days	0	2	2		
5 Days	9	3	12		
6 Days	8	3	11		
7 Days	38	32	70		
8 Days	6	3	9		
9 Days	2	2	4		
10 Days	1	7	8		
11 Days	1	0	1		
13 Days	0	1	1		
14 Days	1	3	4		
Sum	68	56	124		

Source : Primary Data, 2024

The table shows that from the calculation using the spearman correlation test between the length of menstruation and the incidence of anemia, *a P value* of 0.020 (*P value* < 0.005) with a value of r = 0.209. This shows that there is a significant relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows unidirectionality with low strength.

DISCUSSION

Nutritional Status in Adolescent Girls at SMA Negeri 1 Boliyohuto

Based on the results of the study, it was shown that the nutritional status of adolescent girls at SMA Negeri 1 Boliyohuto was in the normal category, namely 63 students (50.8%), while a small part of them were in the obese category of 8 students (6.5%). There are several reasons why adolescents' nutritional status can be normal, namely physical activity that helps maintain a balance between incoming energy (from food) and energy used so that the weight remains ideal. The role of parents and the supportive environment of the family, such as providing healthy food and educating about its importance. Hormonal balance, in adolescents hormonal changes often affect appetite and metabolism. If the hormonal balance is good, nutritional status tends to be normal. A healthy lifestyle, avoiding unhealthy habits by consuming excessive junk food can help maintain nutritional status.

Nutritional status is an expression or manifestation of the balance of the body's state in the form of certain variables. Nutritional status describes the nutritional status of adolescents, which results from the balance between consumption and absorption of nutrients that enter the body. Nutritional status can affect an individual's physical state and health. Nutritional needs will increase in adolescence because during this period the body undergoes rapid growth and development so that it requires higher nutritional intake than in the previous period.

This study is in line with Rosida's (2020) research, the description of nutritional status in female students at Madrasah Mualimat Yogyakarta is the most normal category, namely 24 respondents (60%). A similar study was also conducted by Rosiardani (2018) and found the normal nutritional status of 84 female students (57.9%).

Physical Activity in Adolescent Girls at SMA Negeri 1 Boliyohuto

Based on the results of the study, it was shown that the most physical activity in adolescent girls was in the moderate category of 82 students (66.1%) while a small part was in the severe category of 1 student (0.8%). In this study, the majority of students had a moderate activity pattern (82 respondents). This respondent did moderate fitness exercises such as brisk walking, cycling, and swimming volleyball which resulted in an increase in breath and pulse.

One of the factors that causes a high level of physical activity is the free time spent playing online games. According to Damayanti (2020), adolescent girls usually do physical activities in the house, such as doing housework.

Physical activity is significant because it has a major positive impact on health, fitness and quality of life. The significant value of physical activity includes: improving heart and blood vessel health, reducing the risk of chronic diseases (diabetes, hypertension and obesity), increasing muscle strength and flexibility, helping to control weight and increase bone density, reducing stress and anxiety.

Based on research conducted by Aramico et al (2017), it is stated that the physical activity of adolescents or school age in general has moderate activity, because the activity that is often carried out is learning. Teenagers who lack daily physical activity cause their bodies to expend less energy. Furthermore, if the nutritional intake is excessive without being balanced by physical activity, a teenager is prone to obesity. Changes in body fat when prevented by physical activity.

This research is in line with Sulistya's (2023) research, the most physical activity in female students is in the medium category, 29 female students (44.6%). A similar study was also conducted by Priyanto (2018) and the results of physical activity in female students in the medium category were obtained as many as 17 female students (94.44%). However, this is contrary to research in Indartanti Dea showing no meaningful relationship between nutritional status and the incidence of anemia ($p > 0.05$). This is because most of the subjects are classified as normal nutritional status.

Duration of menstruation in adolescent girls at SMA Negeri 1 Boliyohuto

Based on the results of the study, it was shown that the frequency distribution according to the length of menstruation in adolescent girls was the most at 7 days as many as 70 students (56.5%) while a small part was at 11 and 13 days as many as 1 student (0.8%). This is because most of the teenage girls in grade XI of SMA Negeri 1 Boliyohuto experience menstruation for 7 days which is still said to be normal. For some students who experience irregular menstruation, it can be caused by fatigue or due to hormonal factors.

Menstruation is one of the cycles that lasts for 28 days. The normal cycle lasts in the span of 21-35 days. The length of the cycle can vary in a woman during different times in her life, even from month to month depending on various things including the woman's physical, emotional and nutritional health.

This is in line with the Tualeka (2023) study on the length of menstruation Most respondents experienced a normal menstrual period of 3-7 days (90%). Similar research was also conducted by Karamo (2024) showing that most respondents experienced a normal menstrual period of <7 days (54.1%).

The length of time and bleeding that occurs during menstruation does vary from one woman to another. Normally, bleeding that occurs during menstruation is 3-7 days. In women who have long periods, the duration of menstruation can exceed 7 days.

The incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Based on the results of the study, it was shown that the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto was in the anemia category of 68 students (54.8while a small part of them are in the category of not being anemic as much as 56 students (45.2%). This can be because the reality is that not all young women like to consume foods that contain a lot of B12 or foods that contain iron. This is due to the ignorance factor of the importance of consuming foods that contain a lot of protein or iron, vegetables that contain B12 to prevent anemia.

Anemia occurs due to various causes such as iron deficiency, folic acid deficiency, vitamin B12 and protein. Anemia is mainly caused by insufficient production/quality of red blood cells and blood loss either acutely or chronically. Anemia is caused by a lack of iron in the body. Iron deficiency itself can be caused by several things, such as food intake that is low in iron or maybe the iron in food is found in a form that is difficult to absorb. When iron stores in the body have been depleted and iron absorption in food is low, the body will begin to produce fewer red blood cells and contain less hemoglobin.

This is what finally causes iron nutrient anemia. To carry out optimal prevention and improvement efforts, complete and accurate information is needed about the nutritional status of adolescents, as well as the

factors that affect it.

This is in line with Permatasari's (2016) research that the incidence of anemia in adolescent girls in grade XI of SMA Negeri 3 Surabaya showed that 29 respondents (51.79%) experienced anemia. Similar research was also conducted by Triana (2023) showing that the incidence of anemia in adolescent girls was 19 respondents (63.3%). The high prevalence rate in adolescent girls needs attention, because adolescent girls are in a period of growth and development where the impact, among others, interferes with study concentration, disrupts the body's immunity and decreases the ability to regulate body temperature.

The relationship between nutritional status and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Based on calculations from using the spearman correlation test between nutritional status and the incidence of anemia, P value 0,000 (P value < 0.005) with a value of r = 0.437. This shows that there is a significant relationship between nutritional status and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows the direction of moderate strength. In this study, it was found that respondents had normal nutritional status but still experienced anemia due to nutritional intake problems. There are still many young women who ignore balanced nutrition so that it can result in anemia. The amount of balanced nutrients in the body is insufficient due to excess fat. There is an imbalanced metabolism of nutrients in the body, this condition can cause anemia.

Malnutrition in adolescents because in this condition they want to look slim which is not the right way for teenagers to do it, for example by restricting food or diet, consuming slimming drugs and vomiting food again. This is supported by a study by Dieny (2014) there are around 27% of adolescent girls in Yogyakarta who have a good nutritional status, but make efforts to lose weight, while 5.9% of adolescents with thin nutritional status also continue to try to lose weight in order to achieve an ideal weight.

As for those who have normal nutritional status but do not experience anemia in adolescent girls because the food consumed by the respondents has been sufficient by balancing nutritional intake and activity according to the portions needed by the body.

This research is in line with Rahmawati's (2024) research, a p-value (0.000) was obtained that was smaller than the alpha value (<0.05) which means that HO was rejected, meaning that there is a relationship between nutritional status and the incidence of anemia in adolescent girls on Ery Suparjan street, North Sempaja Village, Samarinda City in 2023.

Good nutritional status greatly affects hemoglobin levels in female adolescents, the better the nutritional value of the food consumed daily the more influential it is on the nutritional status of adolescent girls.

The relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Based on the results of calculations from using the spearman correlation test between physical activity and the incidence of anemia, it was obtained P value 0,010 (P value < 0.005) with a value of r = -0.230. This shows that there is a significant relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows there is an opposite relationship with low strength. It is important for physically active adolescents to prevent anemia, namely by consuming foods rich in iron and supporting nutrients such as vitamin C and protein. Ensures adequate hydration and reduces the risk of iron loss through sweat and maintains a balance between physical activity and nutrient intake. However, where physical activity is moderate, it is generally safe and beneficial for people with anemia, as long as it is done correctly.

Nutritional status affects physical activity, energy performance: a good nutritional status provides enough energy to support physical activity. For example, adequate intake of carbohydrates, proteins, and fats will be the main fuel during activities. Malnutrition: poor nutrition, such as a lack of calories or micronutrients (iron, vitamin D) can lead to fatigue, decreased stamina and reduced capacity to perform physical activity. Overnutrition: obesity or overnutrition status can limit physical activity as it causes problems such as joint pain, shortness of breath and decreased fitness.

The same research was also conducted by Irmawati, et al. (2020) that there was a relationship between physical activity and the incidence of anemia in adolescent girls at SMKN 1 Batumandi. Based on the data obtained, the incidence of anemia is more in moderate activities compared to severe ones.

This is in line with Yulita's (2022) research obtained a p-value of 0.000 (<0.05) which means that there is a significant relationship between physical activity and the incidence of anemia in adolescent girls in Pondok Assalam Naga Switching North Kampar District. A similar study was also conducted by Nurhayati et al. (2020) with a p-value of 0.02 (<0.05), meaning that there was a relationship between physical activity and the incidence of anemia in adolescent girls in MAN 1 Banjarmasin in 2020. If you want to get good physical activity, you must do several activity patterns at least 3-4 times a week and within 30 minutes in one activity, because human physical activity patterns greatly affect the level of hemoglobin in a person's blood who

regularly exercises hemoglobin levels will rise.

The relationship between long menstruation and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto

Based on the results of the calculation using the spearman correlation test between the length of menstruation and the incidence of anemia, it was obtained P value 0,020 (P value < 0.005) with a value of r = 0.209. This shows that there is a significant relationship between the length of menstruation and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto. The correlation coefficient shows unidirectionality with low strength. This is because many days where adolescent girls experience blood loss, the longer they experience menstruation, the more blood production they experience tends to be more and the more iron production due to menstruation will be more which results in anemia (Permatasari, 2016).

The length of menstruation (usually 3-7 days) is affected by nutritional status and physical activity through: reproductive hormones, hormonal imbalances due to malnutrition or strenuous exercise can prolong or shorten the length of menstruation. Endometrial health, the endometrial lining in the uterus requires the support of adequate nutrition and hormonal balance. If nutrients are disturbed, the endometrial lining may not develop optimally, thus affecting the duration of bleeding. Women whose nutritional status is normal or optimal are better able to balance the influence of physical activity on their menstrual cycle.

Adolescent girls with a menstrual period of 3 days but are still anemic due to several factors, namely iron deficiency, an unbalanced diet (not consuming foods rich in iron, vitamin B12 and folic acid), and other factors, namely genetics, chronic diseases, chronic infections, stress and fatigue.

Menstruation for 14 days is called menorrhea or hypermenorrhea, the factors that affect the occurrence of anemia are hormonal balance (hormonal balance can help regulate the menstrual cycle), blood quality (good blood quality and not too thin reduce the risk of anemia), adequate nutrient consumption and overall good health conditions may not experience anemia.

One of the triggering factors for anemia is the condition of an abnormal menstrual cycle. Losing a lot of blood during menstruation is thought to cause anemia To prevent and treat anemia is to increase the consumption of nutritious foods. And by collaborating with related sectors, namely from health workers to provide counseling about the high busyness of adolescents both in school and organizational activities that affect eating patterns so that they are irregular.

This is in line with Hanifah's (2018) research, a significant level of anemia was obtained at 0.006 (<0.05), which means that there is a relationship between the length of menstruation and the incidence of anemia in adolescent girls XI MTS Zainul Hasan Genggong. A similar study was also conducted by Permatasari (2016) with a p value of 0.06 (p<0.05) so that there is a relationship between the length of menstruation and the incidence of anemia in adolescent girls and has a correlation coefficient of -0.366 which means that the longer adolescent girls menstruate, the lower the HB level or increase the incidence of anemia.

CONCLUSION

The nutritional status of adolescent girls at SMA Negeri 1 Boliyohuto is in the normal category, namely 63 students (50.8%), very thin 23 students (18.5%), 14 students (11.3%), 16 students (12.9%), and 8 students (6.5%).

Physical activity in adolescent girls at SMA Negeri 1 Boliyohuto is the most in the medium category of 82 students (66.1%), light 41 students (33.1%), and heavy 1 student (0.8%).

The length of menstruation in adolescent girls at SMA Negeri 1 Boliyohuto is the most at 7 days as many as 70 students (56.5%) while a small part is at 11 and 13 days as many as 1 student (0.8%).

The incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto is most in the anemia category of 68 students (54.8%) while a small part of them are in the non-anemia category of 56 students (45.2%).

There was a relationship between nutritional status and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto with a p value of 0.000 (p value < 0.005) with a value of r = 0.437.

There was a relationship between physical activity and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto with a p value of 0.010 (p value < 0.005) with a value of r = -0.230.

There was a relationship between the length of menstruation and the incidence of anemia in adolescent girls at SMA Negeri 1 Boliyohuto with a p value of 0.020 (p value < 0.005) with a value of r = 0.209.

SUGGESTION

For young women, it is hoped that this study can increase the knowledge of adolescent girls about the relationship between nutritional status, physical activity and menstrual duration and have a positive impact, especially on respondents after getting hemoglobin levels checked, and can also prevent the occurrence of anemia.

For future researchers, it is hoped that future researchers will research other factors such as infectious diseases, menstrual patterns and other nutrients related to the incidence of anemia in adolescent girls.

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