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The Relationship Between Nutritional Status and Diet Patterns and Anemia in Adolescent Girls at MA Jamilurrahman Bantul Yogyakarta

Tarisa Wilsa Athala[1*], Nidatul Khofiyah[2]
[1,2]Program Studi Kebidanan, Universitas 'Aisyiyah Yogyakarta, Indonesia
Email: tarisawilsaath@gmail.com

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**Correspondence:*
Tarisa Wilsa Athala
tarisawilsaath@gmail.com
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Anemia is the impact of nutritional issues in adolescent girls. A lack of nutrients that are necessary for the production of hemoglobin, which may result from inadequate diet or problems with miscarriage, causes nutritional anemia. Adolescent females who suffer from anemia may have a reduction in immunity, making them more vulnerable to illness. In 2022, 700 teenage girls in Bantul were subjected to a hemoglobin test by Dinas Kesehatan Kabupaten Bantul. The results showed that 29% of the females, or 203 of them, had anemia. The method of collecting independent variable data by measuring height and weighing weight. The collection of variable data is bound by conducting an Hb check using a digital Hb tool. Before the examination and weighing, respondents are asked to sign informed consent. The results indicate that there are two variables that are related to the incidence of anemia and nutritional status: the link between food and the incidence of anemia (p-value 0.009) and the relationship between nutritional status and the incidence of anemia (p-value 0.001). Health professionals are required to be able to offer services in schools, particularly in the area of managing anemia. This includes screening for anemia by doing hemoglobin tests and preventing anemia through counseling about adolescent nutrition and anemia. There was a correlation between nutritional status and the occurrence of anemia, according to the findings of a study conducted at MA Jamilurrahman Bantul Yogyakarta on the association between eating habits and anemia in adolescent girls.

Keyword : Adolescent, Anemia, Nutritional Status, Diet

INTRODUCTION

One of the most dynamic stages of a person's life is adolescence. The acceleration of physical, mental, emotional, and social development that directly occurs in both life stages marks this transitional time between childhood and maturity. The WHO defines adolescents as people who are between the ages of 10 and 19, while the Republic of Indonesia's Minister of Health's regulation Number 25 of 2014 defines adolescents as people who are between the ages of 10 and 18. The World Health Organization (WHO) reports that 40-68% of teenage girls still suffer from anemia (Gayatri, 2020).

Anemia affected 26.8% of Indonesian children aged 5 to 14 and 32% of those aged 15 to 24 years, according to the 2018 Basic Health Research (RISKESDAS) data. According to the findings of a 2018 DIY Health Service survey, 19.3% of teenage girls had anemia, meaning their hemoglobin was less than 12 g/dl, and up to 46% were at risk for chronic energy deficit (KEK), with a score below 23.5 (Dinas Kesehatan Provinsi DIY, 2021)

According to the Bantul District Health Office, a hemoglobin examination was conducted in 2022 on 700 teenage girls in Bantul. The results of the health office found that 29% or 203 teenage girls suffered from anemia (Harian Jogja, 2023).

The impact of anemia that can occur in adolescent girls is a decrease in immunity which causes adolescent girls to be susceptible to diseases, can reduce physical fitness and lack of stubbornness in thinking due to the lack of oxygen supply to muscle cells and brain cells so that it causes less productive academic achievement. The impact of anemia experienced by adolescent girls will be carried over until adolescent girls become mothers. Which will result in fetal risks such as low birth weight babies (BBLR), also causing stunting in children and mothers at risk of experiencing before and after childbirth which can threaten the safety of mothers and their babies (Ningtyias, 2022).

According to the Bantul Health Office's 2024 results from the health center in the Bantul Regency work area, the prevalence of anemia was as follows: 84 toddlers aged 1 to 12 months, 90 toddlers aged 2-4 years, 46 children aged 5 to 9 years, 48 children aged 10-14 years, 97 adolescents aged 15-19 years, 688 people aged 20-44 years, and 189 people aged 45-54 years. There are 119 elderly adults in the Bantul Regency region who are 55–59 years old, and 688 elderly people who are 70 years of age or more that suffer from anemia (Dinkes Bantul, 2024).

Midwives as health workers play an important role in overcoming anemia with the efforts made by midwives, namely providing communication to adolescent girls, including those prone to anemia. Because adolescent girls are in the growth period and every month experience menstruation which causes iron loss. The causes of anemia in adolescent girls include the role of midwives in accordance with standard 1 and

standard 6 which aims from this standard is that midwives are able to find anemia in adolescent girls and pregnant women early (Fiaturohmah & Tridiyawati, 2024).

A person's actions are shaped in large part by their cognitive knowledge. Knowledge founded on appropriate comprehension will promote expected actions, particularly in the area of nutrition. A person's comprehension of nutrition science, nutrients, and the relationship between nutrients, nutritional status, and health is known as adolescent nutritional knowledge. Teenagers' attempts to maintain a balance between the food they eat and what they require will be diminished if they don't know enough about nutrition, which will lead to the issue of malnutrition (Dewi Noviyanti et al., 2017).

Supplementing with iron and folic acid through the use of blood-boosting tablets is one of the government's initiatives to lower the prevalence rate of anemia in teenage girls. Blood booster tablets can be obtained from medical facilities, educational institutions, and their own programs. As a calculated attempt to stop the cycle of nutritional issues, the blood supplement tablet program at the school level aims to reach women outside of school as well as adolescent females in junior high, high school, and comparable. One of the objectives of the government program, the anemia prevention and control program in adolescent girls and women of childbearing age (WUS), which provides blood supplement tablets to teenage girls, is to increase adherence to the tablets' use in order to lower the prevalence of anemia in adolescent girls (Aulya et al., 2022).

When a person's hemoglobin (Hb) levels or red blood cell count are below the average for their age and gender, they are said to have anemia. Red blood cells are in charge of delivering oxygen and other nutrients, including vitamins and minerals, to the brain and bodily tissues in healthy individuals. Men and women have different normal hemoglobin levels. Men with anemia have hemoglobin levels below 13.5 g/dl, and women with anemia have hemoglobin levels below 12 g/dl. Anemia may result in certain clinical manifestations (Muhayati et al., 2019).

The adolescent diet will determine the amount of nutrients needed by the adolescent for their growth and development. A sufficient amount of food according to the needs will provide enough nutrients for adolescents to carry out greatly increased physical activities. Under normal conditions, it is required to eat 3 times a day and the balance of nutrients is obtained if the daily meal consists of from 3 groups of foodstuffs. In addition to diet, what affects nutritional status is physical activity. People who are less active have a higher chance of becoming obese because inactivity causes a lot of energy to be stored as fat. This clarifies how physical activity levels, particularly the propensity for prolonged sitting, television viewing, computer use, and other high-tech gadget use, contribute to the prevalence of overweight.

METHODS

A This study uses a type of quantitative research, the method in this study uses cross sectional research, which is a research with data collection at a time where subjects and variables are only observed and measured at that time. This type of research uses a bivariate analysis technique using chi-square. The sample in this study uses the sampling technique used in this study is a total sampling with a sample of 99 adolescent girls.

The tools used are questionnaires, scales, and Hb measuring instruments. The collection of variable data is bound by conducting an Hb check using a digital Hb tool. Before the examination and weighing, respondents are asked to sign informed consent.

RESULTS AND DISCUSSION

Result

A. Age

Table 1. Respondent Characteristics by Age

Age	Frequency	Percentage
14-16 years old	71	71,7%
17-19 years old	28	28,3%
Total	99	100%

From table 1, the age of respondents aged 14-16 years was 71 female students (71.7%), and 17-19 years old as many as 28 students (28.3%).

B. Nutritional Status in Adolescents

Table 2. Frequency Distribution of Nutritional Status

Nutritional Status	Frequency	Percentage
Normal	63	63,3%
Abnormal	36	36,4%
Total	99	100,0 %

From table 2 above, it is explained that the nutritional status of 63 respondents (63.3%) is normal, and 36 respondents (36.4%) are abnormal.

C. Diet in Adolescents

Table 3. Diet Patternsof Adolescent

Diet	Frequency	Percentage
Good	46	46,5 %
Bad	53	53,5 %
Total	99	100,0 %

From table 3 above, it is explained that 46 respondents (46.5%) have a good diet, while 53 respondents (53.5%) have a bad diet.

D. Incidence of Anemia in Adolescents

Table 4. Incidence of Anemia in Adolescent girls

Anemia	Frequency	Percentage
Anemia	25	25,3 %
No Anemia	74	74,7 %
Total	99	100,0 %

Dari tabel 4 di atas menjelaskan bahwa frekuensi anemia 25 responden (25,3%), sedangkan tidak anemia 74 responden (74,7%).

E. Relationship Between Nutritional Status and Anemia di Adolescent

Table 5. Relationship Between Nutritional Status and Anemia in Adolescent

Nutritional Status	Incidence of Anemia				P-value
	Anemia		No Anemia		
	N	%	N	%	
Normal	9	9,1	54	54,5	
Abnormal	16	16,2	20	20,2	0,001
Total	25	25,3	74	74,7	

Bivariate analysis using the chi-square test produced a p-value = 0.001, or a p-value < 0.05, in the table of nutritional status with the incidence of anemia. Consequently, there is a statistically significant relationship between the prevalence of anemia in teenage females at MA Jamilurrahman Bantul Yogyakarta and their nutritional status if H0 is refused and Ha is accepted.

F. Relationship Between Diet Pattern and Anemia di Adolescent Girls

Table 5. Relationship Between Diet Pattern and Anemia in Adolescent

Diet	Incidence of Anemia				P Value
	Anemia		No Anemia		
	N	%	N	%	
Baik	6	6,1	40	40,4	
Tidak Baik	19	19,2	34	34,3	0,009
Total	25	25,3	74	74,7	

The findings of bivariate analysis using the chi-square test showed that the table of dietary patterns with the incidence of anemia had a p-value of 0.009, or a p-value < 0.05. It may be concluded that there is a statistically significant relationship between diet and the prevalence of anemia in teenage girls at MA Jamilurrahman Bantul Yogyakarta, given the rejection of H0 and acceptance of Ha.

Discussion

The study result can be interpreted that a person's nutritional status has a correlation with the incidence of anemia he experiences. The results of this study are in line with research by (Nurjannah & Putri, 2021) which found that the nutritional status of lean meat was 35.5%, and for normal nutritional status of 57.3%, then for obese nutritional status of 7.3%, adolescent anemia was 28%. The study showed that there was a meaningful relationship between nutritional status and the prevalence of anemia p=0.001.

Early teenage respondents typically pay less attention to what they eat, which might have an impact on the adolescent's nutritional health. BMI/U-based nutritional status: undernutrition may occur if dietary intake and requirements are not balanced or satisfied. Insufficient proper nourishment impairs the body's ability to develop physically, develop the brain, and function at its peak. Adolescents are more likely to skip breakfast, compared to other age groups The incidence of anemia in adolescent girls is influenced by many factors, including inadequate food intake. Food can be measured by nutritional status. Regarding the risk of anemia, respondents should consider nutritional status. Nutritional status can be measured directly and indirectly. Nutritional problems (undernutrition or overnutrition) may not appear immediately, but can be recognized only after prolonged deficiency (Muliani et al., 2021).

In general, young women also rarely eat foods such as meat, fish, and liver that are high in iron (heme iron). Young women prefer to consume foods that are high-calorie snacks and low in iron content such as junk food, snacks, soda drinks and others. Although the incidence of anemia is quite high, it is not related to nutritional status (Nabawiyah et al., 2021). Nutritional status is the health status of a person or

group of people due to the consumption, absorption and utilization of nutrients in the body. If the intake of nutrients entering the body is not adequate, the absorption process until the use of nutrients will be reduced (Arismawati et al., 2021). If the intake of nutrients is insufficient, all nutrients that are absorbed, including Fe, will also be less likely to enter the body. In addition to consumption pattern factors (Ridwan et al., 2023).

Based on the findings of interviews that were done with respondents prior to their completion of the questionnaire. According to the interview results, the respondents ate grains, vegetables, and different types of protein every day, making up a pretty full dietary practice. It was determined that the respondents' diet provided them with a rather comprehensive level of nutrition. The study's findings are theoretically justified. It claims that a balanced diet that contains a range of nutrients in enough but not excessive amounts is a healthy diet. To satisfy a person's nutritional demands, a balanced diet includes a range of foods in the right amounts and proportions. Malnutrition can be brought on by an unbalanced diet, and vice versa. An unbalanced consumption pattern can also lead to an excess of some nutrients, which can result in excess nutrition (Rahayu et al., 2023).

According to research Kaimudin et al. (2017) eating habits are significantly related to the incidence of anemia in adolescent girls. The frequency of eating is very closely related to iron intake, the more you eat, the better the nutrient intake will be. If food intake is less, many iron reserves are dismantled so that this situation can accelerate the occurrence of anemia.

Adolescent girls who have unmet dietary needs are more likely to suffer from anemia or malnutrition. Numerous variables might contribute to the occurrence of anemia in teenagers, but inadequate nutritional intake directly affects hemoglobin levels, which in turn causes anemia (Hamidiyah, 2020). In essence, the body's capacity to utilize nutrients and the amount of food consumed determine an individual's nutritional status. The atmosphere around adolescents has a big impact on their diet. Teens favor diets that are low in vitamins and minerals but heavy in fat and sodium. According to the findings of interviews conducted with a number of respondents who were either under- or over-nourished, the respondents favored fast food and snacks that were high in calories over balanced, daily-recommended staple foods. Thus, an overindulgence in particular foods results in inadequate nutrient intake.

Teenagers frequently exhibit the following eating habits: snacking, skipping meals, particularly breakfast, eating at irregular times, frequently consuming fast food, infrequently ingesting fruits, vegetables, and/or dairy products, and improperly controlling weight among teenage ladies. Undernutrition or overnutrition may occur from this, as food consumption may not be in line with needs and balanced nutrition (Florence Grace Agnes, 2017).

CONCLUSION

Based on the results of a study on the relationship between nutritional status and diet to anemia in adolescent girls at MA Jamilurrahman Bantul Yogyakarta, it was found that there was a relationship between nutritional status and the incidence of anemia. Based on the results of the study, it can be concluded that:

1 The nutritional status figure was from 99 respondents who had normal nutritional status, 63 respondents (63.3%), while abnormal 36 respondents (36.4%).

2 The number of dietary patterns was from 99 respondents who had a good diet, 46 respondents (46.5%) and those who had a bad diet, 53 respondents (53.5%).

3 The incidence of anemia was from 99 respondents who were anemic 25 (25.3%), while non-anemia was 74 (74.7%).

4 There was a relationship between nutritional status and the incidence of anemia in students in grades X, XI, XII at MA Jamilurrahman Bantul Yogyakarta where the results of the analysis with the chi-square test obtained a p-value of 0.001 (≤ 0.05).

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