CORRELATION BETWEEN BODY MASS INDEX AND COMPLIANCE WITH IRON TABLET CONSUMPTION WITH THE INCIDENCE OF ANEMIA IN ADOLESCENT GIRLS

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ABSTRACT

Bckground: The substance-based on research data from Health Basic (Riskesdas) 2018, the prevalence of anemia in teenage women in Indonesia by 32%. This means 3-4 out of 10 teenagers Princess suffering from anemia. The factor that exacerbates anemia in teenage princesses is the lack of intake of the substance iron, where the substance iron in teenage princesses is really needed by the body for accelerated growth and development. Besides that, teenage princesses experience menstruation every month, so they need it. Meanwhile, the amount of food consumed is not fulfilled, because the factor wants to slim. The aims study was to determine the relationship between body mass index (BMI) and the behavior of consuming iron supplement tablets with the incidence of anemia in adolescent girls at the Private Vocational High School Keluarga Bunda Jambi.
Method: The method is an analytic study with a cross-sectional approach. The research sample was all students in grades X and XI at the Private Vocational High School Keluarga Bunda Jambi, totaling 52 people, (total sampling). Data collection was carried out in May 2021 using a questionnaire and the hemoglobin value was obtained through examination of the hematology analyzer at the Medical Laboratory Technology of Health Polytechnic of Jambi, data analysis using Chi-square.
Result: The results of the study showed that the incidence of anemia in young women was 25%. Based on BMI, the most common anemia occurred in the normal BMI group (46.1%), followed by a thin BMI of 30.7%. The highest incidence of anemia (92.3%) was in the group of adolescent girls who did not take iron tablets regularly
Conclusion: There is a relationship between adherence to taking Iron Blood tablets and the incidence of anemia with a P-value of 0.000, but there is no significant relationship to BMI.

Keywords: anemia; body mass index; iron supplements; adolescent girls

INTRODUCTION

Anemia is a conditionin which the blood component, namely hemoglobin (Hb), is lower than normal. Anemia is a condition of the body with Hb level slower than normal $<13g/dl$ formen and $<12g/dl$ for women (WHO, 2011; Ian Jenkinsand Aryeh ,2015). Anemia in adolescent girls is still quite high, according to the World Health Organization (2013),the prevalence of anemia in the word ranges from 40-88%. Results of the 2018 Indonesian Demographic Health Survey (IDHS) the proportion of anemia is 32% infemale adolescents aged 15-24 years. In Indonesia it is stated that 3-4 in 10 women suffers from anemia.

Satriani's research (2018), in Jeneponto Regency, out of 200 female students, 74(37%) had anemia.Women of reproductive age (adolescent girls) have a higher risk of iron deficiency anemia during the menstrual cycle (WHO, 2011; Mc Danie, 2019). Another factor that exacerbates anemia in adolescent girls is the lack of ironin take, where iron in adolescent girls is needed by the body to accelerate growth and development. Besides that, adolescent girls experience menstruati on every month so they need higher iron (Mukherjee1 P, and Sigymol. KK. (2018),

while consumption does not meet iron needs, another factor is that young women want to beslim (Arisman, 2004; Mohri, 2013). The results of Yulia's research (2019) in Riau, showed that respondents with alow body mass index (BMI) had anemia of 91.3%.

Anemia causes fatigue, decreases concentration in learning so that learning achievement is low and can reduce work productivity. Anemia also lowers the body's resistance so that it is at risk of infection (Manuaba, etal. 2011). The high prevalence of anemia among adolescents if not handled properly will continue in to adulthood and contribute greatly to increasing maternal mortality rate (MMR), the risk of giving birth to babie swith low birth weight (LBW) and stunting (Robertus, 2014: Ministry of Health, 2016).

Anemia management is carried out well if the risk factors associated with the occurrence of anemia can be identified early. WHO (2014), targets reducing the prevalence of anemia in Women of Reproductive Age by 50 % in 2025. Following upon these recommendations, the Indonesian government is intensifying the prevention and management of anemia in adolescent girls (age 12-18 years) and Women of Reproductive Age by prioritizing administration of iron supplement tablets through school institutions which are given every month through out the years many as 52 items (Ministry of Health, 2016). Ruqoiyah Research. S (2019), in class XI students of high school Sentolo Kulon Progo stated that most students (47.1%) were disobedient in consuming iron tablets, there wasa relationship between compliance with taking iron tablets and the incidence of anemia.

The government has made regulations regarding the priority of giving iron tablets to Women of Reproductive Age to prevent anemia, but the incidence of anemia is still high. This is evidenced by the percentage coverage of iron supplement administration to young women aged 10-19 nationally, whichis 76.2 (IDHS, 2018). In Jambi Province, the coverage of iron supplementation for young women aged 10-19 years was still below the national coverage, namely 71.62 %, while in Jambi City it was lower than the Jambi Province coverage, namely 67.88 % (Riskesdas Jambi Province, 2018). Intake or consumption of food that is not enough will have an impact on malnutrition so that it interferes with growth and inhibits sexual maturation. Teenagers who have low BMI or have a high risk of anemia

METHODS

This research method is analytic with a cross-sectional approach. The population of the study was female students of grades X and XI at the Private Vocational High School in Keluarga Bunda Jambi, with a total sample of 52 people (total sampling). Data collection was carried out in May 2021 using a questionnaire for basic data, and data on compliance with taking iron tablets. BMI data were obtained by measuring height using a microtoice and weighing using a digital weight scale carried out by researchers. Hemoglobin levels through a hematology analyzer examination at the Technology Laboratory Medical Laboratory of the Health Polytechnic of the Jambi Ministry of Health, data analysis using Chi-square with a 95 % degree of confidence.

The threshold for anemia for women aged 11 years and over is if the concentration or level of hemoglobin the blood is less than 12 g/dL (WHO, 2001). BMI is an index of a person's weight in relation to height, which is determined by weighing the body weight in kilograms (Kg) with weighing the body in meters (m^2). Normal BMI is 18.5–25.0. Take iron tablets regularly when you are a adolescent girls consumes iron tablets 52 in one year.

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RESULTS AND DISCUSSION

The research was conducted on adolescent girls, in August 2021, the number of respondents was 52 people. The results showed that 25% of adolescent girls suffer from anemia. Information about the distribution of anemia events based on BMI can be seen in table 1.

Table 1. Distribution of Anemia Incidents in Adolescent Girls based on BMI

Variable	BMI						n	%
	Under weight	%	Normal	%	Over weight	%		
Anemia	4	30,7	6	46,1	3	23,1	13	25
Normal	12	30,8	22	56,4	5	12,8	39	75
Total							52	100

Tabel 2. Distribution of Iron Tablet Consumption

Variable	Reguler		Irreguler		n	Percentage
	n	%	n	%		
Anemia	1	7,9	12	92,3	13	25%
Normal	7	17,9	32	82,0	39	75%
Total					52	100%

From table 2 it can be seen that the highest incidence of anemia (92.3 %) was in the group of adolescent girls who did not regularly consume iron tablets.

The results of statistical tests using the Chi-square showed that there was a significant relationship between adherence to taking iron supplement tablets and the incidence of anemia in young women with a P-value of 0.000where the degree of freedom was 95%. The results of statistical tests on BMI showed that there was no significant relationship with the incidence of anemia in adolescent girls with a p-value of 0.41. The results of this study are in accordance with Novayanti's research (2020), where the incidence of anemia in adolescent girls is 74.1 % with an average Hb level of 9 mg/ dL. The results of anthropometric measurements showed the most of them were in normal BMI status of 75.9%, 20.7% thin BMI, and 3.4% fat BMI. Grace Research. BE and Dwi. KC (2021) there is no relationship between BMI and the incidence of anemia in young girls at SMAN 2 Ngaglik, Sleman Regency, Yogyakarta, as well as Erdarwati's research (2018), there is no relationship between BMI and the incidence of anemia (p=0.831).

Nutritional status can be measured by thin, normal and obese BMI (Ministry of Health RI, 2019). Several factors trigger nutritional problems in adolescents such as food intake, wrong eating habits, erroneous under standing of nutrition where a slim body is the ideal for adolescents so that nutritional needs are not met and excessive preference for certain types of food, for example fast food (Indartanti, 2014).

Table 2 shows the incidence of anemia based on the adherence to consuming iron tablets (TTD) irregularly, the incidence of anemia is 92.3%. Compliance with consuming iron supplementation or giving Fe tablets greatly affects changes in Hb levels, where hemoglobin levels are normal, anemia status will also be normal, so that it can prevent and treat anemia (Yuniarti, 2015). The results of this study are in accordance with the research of Febrianti, et al (2020) in Jember, Indonesia where adolescents who havestrong behavioral control will have the intention to comply with taking iron tablets compared to female adolescents with weak behavioral control over iron supplements consumption. The results of the study prove that increasing knowledge is carried out through continuous health education about the importance of taking iron tablets regularly according to WHO recommendations. Likewise, the study of Indartanti and Apoina (2014), showed that iron intake variables had an effected an anemia.

CONCLUSION

The results showed that the incidence of anemia in adolescent girls was 25%. Based on BMI, the highest incidence of anemia occurred in the normal BMI group (46.1%), followed by a thin BMI of 30.7%. The highest incidence of anemia (92.3%) was in the group of young women who did not take iron tablets regularly. There is a relationship between adherence to taking iron Supplement tablets and the incidence of anemia with a P-value of 0.000

but there is no significant relationship to BMI. Suggestions for adolescent girls should consume balanced nutrition so that BMI for adolescent girls is normal. Health workers need to monitor adherence of young women in consuming iron supplement tablets as an effort to prevent anemia.

CONFLICT OF INTEREST

Authors declare no conflict of interests.

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