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The relationship of knowledge and application of balanced nutrition messages in adolescents in the Prevention of Iron nutritional Anemia

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Abstract

Anemia in adolescent girls is one of the problems of Public Health, which requires prevention and prevention as possible, because it can reduce immunity and human quality in the next generation. This study aims to determine the prevalence of anemia incidence and classification, the relationship of iron nutrition anemia knowledge, balanced nutrition knowledge and the application of balanced nutrition messages to anemia in young women using quantitative metho ds, cross-cectional design. Samples of students of Depok 6 Public High School numbered 394 people. Collecting data with questionnaires, examining hemoglobin levels with a Hb Quick Check tool. Measurement of height with microtoise and weight with digital scales of HN 289. This study showed that the prevalence of anemia was 46.4%, classification of anemia was 8.6%, anemia was 20% and anemia was mild 17.8%. Knowledge of iron deficiency anemia was quite 67.3%, balanced nutrition knowledge was quite 51.3%. The application of balanced nutrition messages that are not yet in accordance with PGS 64%, There is a significant relationship between balanced nutrition knowledge, application of balanced nutrition messages to iron nutrition anemia, (P <0.05), no correlation between anemia knowledge and iron nutrition anemia (P> 0.05) .

***Keywords**: Balanced Nutrition Knowledge, Application Of Baanced Nutrition, Anemia*

INTRODUCTION

According to the Ministry of Health (2014) the highest prevalence of anemia occurs in women and adolescent girls. In developed countries the prevalence of anemia is estimated at 9%, while in developing countries 43%, women of childbearing age (15-49 years) by 30% (WHO, 2003). According to data Riskesdas (2013) states the incidence of anemia nationally by 21.7 %, in men 18.4% and 23.9% in women. Who targets the prevalence of anemia in WUS to fall by 50% by 2025. Year after year there seems to be an increase in the incidence of anemia in adolescents. According to Rikesdas 2018 data, anemia increased to 48.9% (Minister of health of the Republic of Indonesia, 2014).

How to overcome and prevent anemia has been done by health centers and other health services, such as carrying out nutritional supplementation programs through the provision of food and nutritional products, giving iron and vitamin A tablets, food ingredient fortification programs such as iron fortification in flour and nutrition education programs. However, the prevalence of iron nutritional anemia is still high. The high risk of nutritional disorders in adolescents, such as anemia so that the government issued regulation Permenkes RI no. 41 of 2014 on balanced nutrition guidelines (PGS) which specifically.

have a message to adolescents (age 10-19 years) (Almatsier, 2011).

The application of balanced nutrition messages by regulating the frequency and type of food, avoiding junkfood foods, such as fried chicken, pizza, hamburgers, instant noodles, fried foods, cilok and cireng, chiki/chips, sweets and others whose micronutrients are very lacking, is one of the important factors in the prevention and countermeasures of iron nutritional anemia (Adriani, 2012). Considering that Iron nutritional anemia can reduce the quality of human

resources, it is necessary to know the level of knowledge and application of balanced nutrition messages to prevent iron nutritional anemia (Retno, 2010).

Considering that Iron nutritional anemia can reduce the quality of human resources, it is necessary to know the level of knowledge and application of balanced nutrition messages to prevent iron nutritional anemia. This level of knowledge can affect attitudes and actions in choosing healthy foods, regulating the frequency of meals and the type of food in accordance with the message of balanced nutrition (Rusilanti, 2015).

SMA negeri 6 Depok is one of the educational institutions under the Depok City Education Office, located on Jalan raya Limo, not far from the location of Fikes UPN Veteran Jakarta and is a fostered area of the Faculty of Health Sciences UPN Veteran Jakarta. From the interview results.

with the public relations teacher of SMA negeri 6 Depok, it was found that there had never been a study similar to the title of the researcher proposed and there was no hemoglobin examination from health workers, especially students. Therefore, the Public Health Study Program, which is one of the programs under the auspices of the Faculty of Health Sciences, Universitas Pembangunan Nasional Veteran Jakarta, needs to know the level of knowledge of anemia, balanced nutrition and the application of balanced nutrition in accordance with the standards of balanced nutrition guidelines.

RESEARCH METHODS

The design in this study is the design of correlation analysis with cross sectional approach, with the population in this study are students aged 15 s/D 17 years, registered as active students. The sample size was determined by purposive sampling amounting to 394 students, with details of Class X 175 students and 219 students of Class XI, consisting of Science and social studies majors. The independent variable of this research is the knowledge of balanced nutrition and the application of balanced nutrition. The application of balanced nutrition message consists of the frequency of meals in a day, the habit of breakfast before school, the habit of consumption of vegetables and fruits, the habit of bringing supplies and water from home, the favorite consumption of junkfood & fast food, the habit of drinking tea / coffee before and after meals and during meals, and the habit of reading labels every Mem buy packaged food. The dependent variable of the study was the nutritional anemia status of adolescent girls in SMA 6 Depok. The instrument used in the form of questionnaires knowledge of adolescents about balanced nutrition messages, and the application of balanced nutrition, as well as the measurement of weight, height and haemoglobin levels to adolescents. The data obtained were analyzed using chi square test with significance degree $p < 0.05$.

RESULTS AND DISCUSSION

The distribution of the level of education of fathers and mothers of respondents was almost evenly distributed, the largest percentage was at the level of Higher Education (43.9%) most of the respondents 'fathers worked as employees while the respondents' mothers worked 34.8%. more than half (60.4%) of income is IDR 5,000,000. The results showed that the majority of respondents had normal nutritional status (67.5%). Almost half (46.4 %) of respondents were anemic, with a classification of 8.6% severe anemia, moderate anemia (20.0%) and mild anemia (17.8%). The results showed that the average knowledge of respondents about anemia and balanced nutrition category is sufficient (67.3%) and high

(32.7%) but respondents who apply balanced nutrition messages according to balanced nutrition guidelines (PGS) is only 36 %.

Table 1. Frequency distribution of respondents in SMA Negeri 6 Depok

Variabel	n	**Persentase (%)**
Classification Of Anemia		
• Weight Level	34	8,6
• Medium Level	79	20
• Light Level	70	17,8
Mother's Education		
• Low	81	20,6
• Medium	157	39,8
• Height	156	39,6
Mother's Work	137	34,8
• Working	257	65,2
• Housewife		
Family Income		
• IDR 5,000,000	238	60,4
• < Rp 5,000,000	156	33,3
Anemia Knowledge		
• Simply	265	67,3
• Height	129	32,7
Balanced Nutrition Message Knowledge		
• Simply	202	51,3
• Height	192	48,7
Application Of Balanced Nutrition		
• Not PGs compliant	252	64
• PGs compliant	142	36

Based on Table 1, the results showed that all respondents consumed rice as a staple food source. Respondents who consume rice three times a day only 39.8%, respondents often have breakfast 52.8%. Respondents often consume 50.8% of animal side dishes, and only 26.1% consume more servings of vegetables and fruit in the plate . Respondents who often consume vegetables and fruits are 21.3% colored. Most respondents often bring supplies and water from home (72.6%). From the results of the observations of researchers obtained the provision brought in the form of processed foods such as chiken nugget, processed fried chicken, instant fried noodles, and fried sausage.

Respondents who often consume fast food and junkfood 52.8%, and only 16.5% of respondents who often drink tea/coffee during meals or two hours after meals. Respondents who often read labels before buying packaged foods 43.9%, and respondents who often resist hunger to stay slim 82.2%.

Table 2. Distribution of data on the application of balanced nutrition messages for young women in SMA Negeri 6 Depok City

No	**Variable**	**Persentase (%)**			
1	Rice consumption 3x / hr	237	60,2	147	39,8
2	Breakfast before school	186	47,2	208	50,8
3	Consumption of animal side dishes	194	49,2	200	52,8
4	> Many servings of vegetables and fruit in my dinner plate	291	73,9	103	50,8
5	Eat colored vegetables and fruits	310	78,7	84	26,1
6	Bring supplies and water from home	108	27,4	286	21,
7	Fast food, sweet, salty and fatty foods (fastfood and junkfood)	186	47,2	208	72,6
8	Drink tea / coffee during meals or 2 hours after meals	329	83,5	65	52,8
9	Read labels before buying packaged foods	221	56,1	173	43,9
10	Resist hunger to stay slim	70	17,8	324	82,2

Table 3. Relationship of knowledge of students about Anemia with Anemia Nutrition in SMA Negeri 6 Depok

Student knowledge about Anemia	Nutritional Anemia					
	Anemia		No Anemia		total	
	n	%	n	%	n	%
Simply	124	46,8	141	53,1	265	100
Height	59	45,7	70	54,3	29	100
P Value = 0.092						

Based On Table 3. it is known that the results of the analysis of chi-square test of anemia knowledge relationship, obtained by respondents who are knowledgeable enough 141(53.2%) does not occur anemia, while among respondents who are knowledgeable high 70

(54.3%) does not occur anemia. Statistical test results obtained P = 0.009, it can be concluded there is no difference in the proportion of incidence of iron nutritional anemia between respondents with high knowledge of respondents with sufficient knowledge.

Table 4. Relationship of students ' knowledge about balanced nutrition message with nutritional Anemia in SMA Negeri 6 Depok

Students ' knowledge of Anemia	Nutritional Anemia					
	Anemia		No Anemia		total	
	n	%	n	%	n	%
Simply	112	55,4	90	44,6	202	100
Height	71	37	121	63	192	100
P Value = 0.000						

Based On Table 4. it is known that from the analysis of the relationship of balanced nutrition knowledge with the incidence of anemia obtained, respondents with sufficient knowledge 90 (44.6%) did not occur anemia, while among respondents. 121% (63.0%) had no anemia. Statistical test results obtained P = 0.000, the conclusion of this analysis there is a significant relationship between the knowledge of balanced nutrition with the incidence of iron nutritional anemia.

Table 5. Relationship of application of balanced nutrition message with nutritional Anemia in SMA Negeri 6 Depok

Application Of Balanced Nutrition Messages	Nutritional Anemia					
	Anemia		No Anemia		total	
	n	%	n	%	n	%
Not PGs compliant	135	53,6	117	46,4	252	100
PGs compliant	48	33,8	94	66,2	142	100
P Value = 0.000						

Based On Table 5. it is known that from the analysis of the relationship of the application of balanced nutrition messages that are not in accordance with balanced nutrition guidelines 117(46.4%) there is no anemia, while among the respondents who apply balanced nutrition messages in accordance with balanced nutrition guidelines 94 (66.2%) there is no anemia. Statistical test results obtained P = 0.000, it can be concluded there is a significant relationship between the application of balanced nutrition with the incidence of iron nutritional anemia.

Discussion

Almost half (46.4 %) of respondents were affected by anemia, with classification of severe anemia 8.6%, moderate anemia 20.1% and mild anemia 17.8%. Adolescents who have anemia will decrease.

physical ability and academic performance, because the state of anemia causes insufficient blood binding and transporting oxygen from the lungs throughout the body, especially to the brain, so respondents experience dizziness, eyes berkunang, tired and sleepy. This results in difficulty concentrating, low physical endurance, decreased physical activity, easy infection and decreased learning achievement. In the short term anemia can lead to delayed physical growth, and sexual maturity 8. Long-term impact of high risk during

pregnancy and childbirth, such as miscarriage, bleeding, even cause death in the mother while in infants at risk of birth defects and BBLR 9.

Of the 394 respondents studied, 46.4% had anemia, this finding was higher than the global and national percentage. According to who adolescent girls in Southeast Asia about 25-40% suffer from anemia. 10. This study is in line with the research11, in Bangladesh found about 43% of adolescent girls in the village suffer from anemia. According to Ummi Kalsum & Raden Halim, 2016 12 found 46.7%, students of SMA Negeri 8 Muaro Jambi, anemic, and while the research of Suryani et al (2015) 13 in Bengkulu found the prevalence of iron nutritional anemia in adolescent girls 43 %. From the results of these studies it can be concluded that the incidence of anemia in some areas is still high. this is very risky for cognitive disorders, reduced immune system, and growth and development disorders that have an impact on the next development period.

The results showed that no respondents were less knowledgeable about Iron nutritional anemia, two-thirds of respondents had enough knowledge (67.3%), the rest were high knowledge. This finding is in line with the results of research Rizky Afrilia, et al (2013) 14 shows that the knowledge of adolescent girls about Iron nutritional anemia is mostly in the medium category (60%), 23.3% is in the high category, only a small part in the low category. However, in this study did not find teenagers who are low knowledge because of the rapid development and technological progress so that the materials about health, especially iron nutritional anemia, can be accessed easily. In line with the findings of Sihotang (2012) 15 found that most young women get information about Iron nutritional anemia from the media (electronic, print, internet), from teachers only a quarter part, the rest from family and friends. Anemia is a condition in which hemoglobin and erythrocyte levels are lower than normal. In women normal hemoglobin is 12-16 gr %, adolescent girls are said to be anemic if hemoglobin (Hb) is less than 12 g% 16.

Knowledge about nutritional anemia influence on behavior in preventing and overcoming it, but in this study, although found high enough knowledge, the status of anemia is still high. This is due to their indifference to their health, who consider that anemia is not a disease, but something that they often experience, especially during menstruation. This can be seen from the results of the researcher's interview with two respondents who had anemia in the weight category with Hb < 7.0 gr %, they said "anemia due to menstruation, so commonly experienced by them" there is no anxiety from their facial features, although complaining of drowsiness while studying in class and berkunang and dizzy views sometimes fall during the ceremony"" So the fairly good knowledge of anemia that is known is often ignored by them. The results of the analysis of the relationship of knowledge about anemia, with the incidence of anemia obtained p Value > 0.05, which means there is no significant difference in the proportion of incidence of iron nutritional anemia between respondents with high knowledge of respondents with sufficient knowledge.

Balanced nutrition knowledge is knowledge about the composition of nutrients that a person needs in order to live a healthy life. This knowledge is not only obtained through education in schools but can also be through non-formal education, such as magazines, TV, radio, or video through the internet and others. Balanced nutrition knowledge that needs to be known respondents are knowledge about the composition of a balanced menu, types of food sources of energy, sources of builders, sources of vitamins, mineral sources, nutritional content of junk food, and fiber-rich food sources 17. The results obtained the respondents ' knowledge about balanced nutrition is quite good. No low category knowledge was found.

The results of the analysis of the relationship between the knowledge of balanced nutrition with the incidence of iron nutrition anemia showed, respondents with a level of sufficient knowledge about balanced nutrition 90 (44.6%) did not occur anemia, while among

respondents with high knowledge about balanced nutrition 121 (63.0%) did not occur anemia. Statistical test results obtained value p = 0.000, it can be concluded there is a significant relationship between the knowledge of balanced nutrition with the incidence of iron nutritional anemia. From the analysis results obtained the value of OR = 2.121 (95% CI (1.417-3.175) which means respondents with high knowledge of balanced nutrition have a chance of 2.121 times there is no anemia.

The results showed that 64 % of respondents have not consumed according to the message of balanced nutrition, only 39.8% of respondents used to consume rice or other staple foods as a source of energy for school activities, and extracurricular activities. Deficiency of energy and other nutrients in adolescence can have a negative impact that continues into adulthood. Research Aminudin, et al (2011) 18, found 43.4% of new students in FKM Unhas have not done the practice of balanced nutrition. Consuming food with balanced nutrition will provide enough energy for the needs of the body, maintain and prevent disease and improve health.

Breakfast is one of the messages balanced nutrition to meet the needs of the body in the morning, especially carbohydrates, which serves to balance the levels of sugar in the blood as a source of energy, for the work of the brain 19. Breakfast with a menu that contains nutrients carbohydrates, protein minerals and vitamins are very useful in concentrating, maintaining health and to grow and develop. The results showed that respondents did not usually eat breakfast as much as 47.2%. Ministry of Health 19 found 40 % of children aged 6-19 years did not eat breakfast. Presentation of these findings is better than the results of research Ummi Kalsum & Raden Halim (2016) 12 in adolescents in SMA negeri 8 Muaro Jambi obtained 60% of students are not used to breakfast, as well as the results of the Global School Health Survey in 2015, obtained junior high and high school students do not always have breakfast (65.2%) 19. If this condition continues for a long time, it is very disturbing the concentration of learning and decreased performance, and malnutrition occurs.

CONCLUSION

Based on the research that has been done, it can be concluded that the prevalence of iron nutritional anemia in 6 Depok students is still high with the most classification of moderate nutritional anemia. More than a third of the respondents were malnourished (obese and obese, very thin and thin). Students ' knowledge about anemia, and balanced nutrition in the category is quite good, but most of the application of balanced nutrition messages are not in accordance with balanced nutrition messages. There is a significant relationship between the knowledge of balanced nutrition and the application of balanced nutrition messages with iron nutritional anemia. There is no relationship between the knowledge of anemia with the incidence of iron nutritional anemia.

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