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Relationship Levels of Knowledge, Attitude, Behavior, and School Support in Anemia Students

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Abstract---*Anemia is a health problem that often occurs in young women. The purpose of this study is to know the relationship between the level of knowledge, attitudes, behavior, and school support with anemia in female students. The study was conducted on students in 2 State Junior High Schools in Sorong Regency as many as 71 respondents of this type of research were observational with a cross-sectional approach. The instruments used are questionnaires and Hb examinations using the GCHb easy touch tool. The results of statistical tests were obtained there was a relationship between knowledge level and anemia (ρ = 0.000), there was a relationship between attitudes with anemia (ρ = 0.002), there was a relationship between behavior and anemia (ρ = 0.003), there was no relationship between school support and anemia (ρ = 0.565. Increasing knowledge, attitudes, and behaviors can be done by providing material in the form of knowledge that schools can use in collaboration with the Sorong Regency Health Office, as well as support from families and communities.*
Keywords---*anemia, attitudes, behavior, level knowledge, school support*

Introduction

Adolescence is a transition period from childhood to adulthood, characterized by hormonal, physical, psychological, and social changes (Basith et al., 2017). The World Health Organization (WHO) defines adolescents as individuals with Disease (GBD) and reported in 2013 that the overall prevalence in Indonesia of 27.4% (Kassebaum, 2013).

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Anemia can be caused by several things, such as a decrease in the rate of erythropoiesis, loss of erythrocytes in large quantities, and deficiency in hemoglobin content (Sherwood, 2015). Young women's age range from 10-19 years. According to the Regulation of the Minister of Health of the Republic of Indonesia, 25 of 2014 adolescents are 10-18 years (Regulation of the Minister of Health of the Republic of Indonesia, 2014). The results of the population census in 2020 stated that the total population of Indonesia was 270.20 million people, and the total population in West Papua was 1.13 million people, which was dominated by the population of productive age (15-64 years) by 71.47% (BPS West Papua, 2021).

One health problem that often occurs in young women is anemia, which is a fairly big problem (Adriastuti et al., 2020). Anemia is a condition of decreasing the number of erythrocyte periods characterized by a decrease in Hb (hemoglobin), hematocrit, and erythrocyte count levels, so that it cannot carry out its function of carrying oxygen and sufficient molecules to peripheral tissues (Nasruddin et al., 2021; Ramdany, 2021). Anemia is the most common health problem globally, especially in developing countries, including Indonesia. The prevalence of anemia in adolescents in developing countries is 27% and in developed countries is 6%. WHO states that anemia affects 1.62 billion people globally, equivalent to 24.8% of the population (WHO, 2021). Global Burden has a ten times greater risk of anemia than adolescent boys because young women are in their infancy and often menstruate every month and also pay great attention to their body shape and appearance by dieting or limiting the consumption of foods that are not balanced with nutritional needs, so they need more iron (Basith et al., 2017; Kulsum, 2020). The risk of anemia in adolescents is influenced by several interrelated things such as lack of interest or motivation of adolescents to seek information about anemia, adolescents lacking support either from family or from the school regarding information about anemia, and lack of emotional support in the form of attention to adolescents in dealing with the incidence of anemia, economic problems that affect nutritional intake, lack of role of health workers in approaching counseling, counseling or education about anemia in adolescents, knowledge, attitudes, and behaviors also greatly affect adolescents, thus making the incidence of anemia in adolescents increase (Basith et al., 2017; Subratha, 2020; Noviazahra, 2017).

Based on the results of research conducted by Etik Sulistyorini & Siti Maesaroh (2019), on young women in RW 12 Genengan Mojosongo Jebres Surakarta with a total of 58 respondents, the results of the study of young women's knowledge about anemia were a sufficient category of 40 respondents (69%). The attitudes of young women about anemia were in the sufficient category of 42 respondents (72.4%), and the behavior of young women in the category of fewer than 30 respondents (51.7%) (Etik Sulistyorini & Siti Maesaroh, 2019). In research conducted by Laksmita & Yenie (2018), on young women, as many as 145 respondents found that as many as 77 respondents (53.1%) were less knowledgeable. As many as 68 respondents (46.9%) were knowledgeable enough, as many as 91 respondents (62.8%) had anemia, and as many as 54 respondents (37.8%) did not have anemia (Laksmita & Yenie, 2018). Based on the results of previous studies, it was found that adolescents' knowledge, attitudes, and behavior towards anemia were very low. There were still several adolescents who experienced the incidence of anemia and the high incidence of anemia and the high probability of anemia in adolescent girls. Hence, researchers were interested in the relationship between the level of knowledge, attitudes, behavior, and school support with anemia in students at First State School 26 and First State School 10 Sorong Regency. The benefits of research are as reading material to increase knowledge, attitudes, and behaviors and as information input for the school about anemia to adolescents so that the school can help the quality and quantity of education in the health sector and can be an educational material for the health office to continue to provide health information in the form of counseling and various other methods to schools in the nearest region (Gangat & Wolanskyj, 2013; Marcillo-Bravo & Reyes-Meza, 2022).

Research Method

The type of research carried out is observational research with a cross-sectional method. This research was carried out at First State School 26 and the First State School 10 Sorong Regency on June 4-7, 2022. The population in this study were students in grades 7 and 8 at the First State School 26, totaling 39, and the First State School 10, totaling 48. The samples taken in this study were students who were willing to be research samples and met the inclusion criteria. The large calculation of the sample in the study using the Slovin formula obtained the sample for this study was 71 and divided by 36 students from the First State School 26 and 35 students from the First State School Negeri 10. The sampling technique in this study is non-probability sampling in the form of accidental sampling. The data collected in this study used a validated questionnaire and then given to students of the First State School 26 and the First State School 10 Sorong Regency to be filled in. After filling out a questionnaire, the students were directed to the table provided for hemoglobin examination using the GCHb easy touch tool, assisted by one UNIPA medical faculty student. The data analysis used was univariate and bivariate. The univariate analysis only resulted in the

frequency and percentage distribution of each variable studied. Bivariate analysis to see the relationship between knowledge level and anemia, the relationship of attitudes with behavioral anemia, and the relationship of school support with anemia in students at the First State School 26 and the First State School 10 Sorong Regency conducted a Chi-square test by taking 2 conclusions, if $\rho < 0.05$ then Ho is rejected and if $\rho > 0.05$ then Ho is accepted. This research was conducted after obtaining permits to conduct research at the First State School 26 and the First State School 10 Aimas District, Sorong Regency.

Result and Discussion

Based on the results of research and data analysis that has been carried out at two junior high schools in Sorong Regency, it can be described as follows:

Age characteristics of respondents

Based table 4.1, it shows that of the 71 respondents aged 12 years as many as 13 (18.3%), respondents aged 13 years as many as 22 (31.0%), respondents aged 14 years as many as 23 (32.4%), respondents aged 15 years as many as 8 (11.3%), respondents aged 16 years as many as 4 (5.6%), and respondents aged 17 years as much as 1 (1.4%).

Table 1
Age characteristics of respondents

Age	Frequency	Percentage
12 Years	13	18.3
13 Years	22	31
14 Years	23	32.4
15 Years	8	11.3
16 Years	4	5.6
17 Years	1	1.4
Total	71	100

Degree of anemia by age

Based table 4.2, shows that the 25 respondents who had mild anemia and were 12 years old as many as 1 person (4%), who had mild anemia and aged 13 years as many as 2 people (8%), who had anemia and were 14 years old as many as 7 people (28%), who had mild anemia and were 15 years old as many as 1 person (4%), who had moderate anemia and were 12 years old as many as 2 people (8%), who had moderate anemia and were 13 years old as many as 2 people (8%), who had moderate anemia and were 14 years old as many as 8 people (32%), who had severe anemia and were 12 years old as many as 1 person (4%), who had anemia and aged 13 years as much as 1 person (4%).

Table 2
Distribution of frequency and percentage of degrees of anemia by age

Age	Degree of Anemia						Total	%
	Mild	%	Moderate	%	Severe	%		
12 years	1	4	2	8	1	4	4	16
13 years	2	8	2	8	1	4	5	20
14 years	7	28	8	32	-	-	15	60
15 years	1	4	-	-	-	-	1	4
Total	11	44	12	48	2	8	25	100

Univariate analysis results

The results of the study in table 4.3 showed that of the 71 respondents in the anemia status variable who experienced anemia as many as 25 respondents with a percentage of 35.2%, who did not have anemia as many as 46 respondents

with a percentage of 64.8%. In the varied level of knowledge who have good knowledge, as many as 44 respondents with a percentage of 62%, and those with a level of knowledge less as many as 27 respondents with a percentage of 38%. In the attitude variable, respondents with a positive attitude were 35 respondents with a percentage of 49.3%, and those with a negative attitude were 36 respondents with a percentage of 50.7%. In the behavior variables of respondents who had good eating behaviors, as many as 37 respondents with a percentage of 53.5%, and those who had less eating behaviors, as many as 34 respondents with a percentage of 46.5%. On the variable of school support, respondents who expressed support for schools that supported as many as those who did not support as many as 51 respondents with a percentage of 71.8% 20 respondents with a percentage of 28.2%.

Table 3
Frequency distribution and variable percentage

Variable	Frequency	Percentage (%)
Anemia Status		
- Anemia	25	35.2
- No Anemia	46	64.8
Knowledge Level		
- Good	44	62
- Less	27	38
Attitudes		
- Positive	35	49.3
- Negative	36	50.7
Behavior		
- Good	37	52.1
- Less	34	47.9
School Support		
- Support	20	28.2
- Doesn't Support	51	71.8
Total	71	100

Bivariate analysis results
Relationship of knowledge level with anemia

From the results of the study in table 4.4, it shows that respondents with a good level of knowledge who experience anemia as many as 8 people (11.3%), respondents with a good level of knowledge who do not have anemia as many as 36 people (50.7%), respondents with fewer knowledge levels who have anemia as many as 17 people (23.9%) and respondents with fewer knowledge levels who do not experience anemia as many as 10 people (14.1%).

Table 4
Relationship of knowledge level with anemia

Knowledge Level	Anemia status						P-Value
	No Anemia	%	Anemia	%	Total	%	
Good	36	50.7	8	11.3	44	62	0.000
Less	10	14.1	17	23.9	27	38	
Total	46	64.8	25	35.2	71	100	

Relationship of attitudes with anemia

The results of the study in table 4.5 showed that respondents with positive attitudes who had anemia were 12 people (49.6%), respondents with positive attitudes who did not have anemia as many as 29 people (50.1%), and respondents with negative attitudes who had anemia as many as 19 people (26.8%), respondents with negative attitudes who did not have anemia as many as 17 people (23.9%).

Table 5
Relationship of attitudes with anemia

Attitudes	Anemia Status						P-Value
	No Anemia	%	Anemia	%	Total	%	
Positive	29	50.1	12	49.6	35	49.3	
Negative	17	23,9	19	26,8	36	50.7	0.002
Total	46	64.8	25	35.2	71	100	

The relationship of behavior with anemia

From the results of the study in table 4.6, it shows that 7 respondents with good behavior who experience anemia (9.9%), respondents with good behavior who do not have anemia as many as 30 people (42.2%), respondents with less behavior who have anemia as many as 18 people (25.4%) and respondents with less behavior who do not have anemia as many as 16 people (22.5%).

Table 6
The relationship of behavior with anemia

Behavior	Status Anemia						P-Value
	No Anemia	%	Anemia	%	Total	%	
Good	30	42.2	7	9.9	37	52.1	
Less	16	22.5	18	25.4	34	47.9	0.003
Total	46	64.8	25	35.2	71	100	

The relationship of school support with anemia

From the results of the study in table 4.7, it showed that 14 (19.7%) respondents who expressed support for schools that supported and had anemia, and respondents who expressed support for schools that supported and did not have anemia were 14 (19.7%), and respondents who expressed support for schools that were not supportive and had anemia were 19 (26.7%), respondents who expressed support for schools that were not supportive and had anemia as many as 32 (45.1%).

Table 7
The relationship of school support with anemia

School Support	Status Anemia						P-Value
	No Anemia	%	Anemia	%	Total	%	
Support	14	19.7	6	8.5	20	28,2	
Doesn't Support	32	45.1	19	26.7	51	71,8	0.565
Total	46	64.8	25	35.2	71	100	

Discussion

The age characteristics in the study were obtained by students of SMP Negeri 26 and SMP Negeri 10 Sorong Regency. The most were at the age of 13-14 years.

The relationship of knowledge level with anemia

In the results of statistical tests on the relationship between knowledge levels and anemia, a value of ρ-value = 0.000 was obtained, where the value of ρ<0.05, so that H0 was rejected and H1 was accepted, which means that there is a relationship between the level of knowledge and the incidence of anemia. This study's results align with the research of Budianto & Fadhilah (2016), who stated that there is a relationship between knowledge of anemia and the incidence of anemia. Budianto & Fadhilah (2016), concluded that low knowledge is based on the incidence of

anemia in adolescents. Determining and choosing daily food (Etik Sulistyorini & Siti Maesaroh, 2019; Laksmita & Yenie, 2018).

The relationship of attitudes with anemia

In the results of statistical tests of attitudes with anemia, a value of ρ-value = 0.002 was obtained, where the value of ρ<0.05, so that H0 was rejected and H1 was accepted, which means that there is a relationship between attitude and the incidence of anemia. This study's results align with the research of Fairuza (2018), which stated that there is a relationship between attitudes and the incidence of anemia. Fairuza (2018), concluded that there was a significant difference in the proportion of anemia incidence in young women between respondents who had negative attitudes and respondents16 who had positive attitudes. This research knowledge was obtained by those with a good level of knowledge aged 15-17 years, while those with a level of knowledge are less than 12-14 years old. A person's knowledge is also influenced by age. The older, the more experience and knowledge gained, the older a person's age affects the level of ability and maturity in thinking and receiving better information compared to a younger age (Yeni, 2015).

Knowledge will affect a person's attitude and behavior in determining actions. Lack of knowledge about anemia in adolescents can make adolescents prone to anemia. Lack of knowledge can affect a person's behavior in a good manner and will encourage a person to display an attitude that follows the knowledge that has been obtained (Caturiyantiningtiyas et al., 2015), So that it can be interpreted that knowledge can affect a person's attitude, with good knowledge, a good attitude will be realized, but on the contrary, if knowledge is not good, a bad attitude will be realized (Tefferi, 2003; Patel, 2008; Abu-Baker et al., 2021).

The relationship of behavior with anemia

In the results of behavioral statistics tests with anemia, a value of ρ-value = 0.003 was obtained, where the value of ρ<0.05, so that H0 was rejected and H1 was accepted, which means that there is a relationship between behavior and anemia. This study's results align with the research of Caturiyantiningtiyas et al. (2015), stating that there is a relationship between behavior and the incidence of anemia. From the results of statistical tests, it can be seen that respondents with behavior are more or less affected by anemia compared to respondents with good behavior. Behavior in health maintenance is a person's effort to maintain health so as not to get sick. This health maintenance behavior consists of three aspects, one of which is nutritional behavior. Food and drink can maintain and improve a person's health, but on the contrary, food, and drink can be the cause of decreasing a person's health and can even bring disease. It depends on the person's behavior towards the food and drink (Adventus & Mahendra, 2019).

The relationship of school support with anemia

In the results of the statistical test of school support with anemia, a value of ρ-value = 0.565, where the value of ρ>0.05 so that H0 was accepted and H1 was rejected, which means that there is no relationship between school support and the incidence of anemia. From these results, it can be concluded that school support does not affect the incidence of anemia in young women. The results of this study are in line with the research of Riki (2018), stating that there is no significant relationship between school support and the incidence of anemia.

Information affects a person's knowledge if he often gets information about learning, it will increase his knowledge and insight, while someone who does not receive information often will not increase his knowledge and insight. Increased knowledge is not only obtained in formal education but also in non-formal education. A person's knowledge of an object also contains two aspects, namely, positive and negative aspects. These two aspects will ultimately determine a person's attitude and behavior towards a particular object (Etik Sulistyorini & Siti Maesaroh, 2019). Educational activities are characterized by the environment that carries them out, where educational activities start from the family environment. Then education is developed in schools and communities. The three educational environments must synergize because education in schools is influenced by educational conditions in the family and community (Saruji, 2020). So in the results of statistical tests between school support and anemia, there is no significant relationship because education is obtained from schools, families, and the community, and schools also have a role in providing educational support to increase students' knowledge about anemia (Auerbach, 2009; Alleyne et al., 2008; Sandi et al., 2017). The school environment also plays a role in the movement of consuming blood-added tablets once a week, reminding to take blood-added tablets, and monitoring female students to take blood-added tablets. The school also tells the correct dose and how to consume blood-added tablets, gives praise, and refers

students to the health center if there are symptoms of anemia (Wiguna et al., 2022). From the results of observations, when taking data, it was obtained that several female students showed symptoms of anemia, namely looking pale, weak, and cold palms. In addition, it was also found that most students at first state school 26 and first state school 10 Sorong Regency very rarely had breakfast before going to school (Soleimani, 2011; Hüdaoğlu et al., 2006; Al Hassan, 2015).

Conclusion

The results showed that the level of knowledge, attitudes, and behavior of female students was lacking, so it is hoped that the school can help students by providing information about anemia to reduce the incidence of anemia which can risk interfering with teaching and learning and student achievement. It is hoped that students of SMP Negeri 26 and SMP Negeri 10 will increase their interest in seeking information about anemia from library books, articles, the internet, and other media.

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