Knowledge, Attitude And Adherence To Taking Blood Supplement Tablets Against Anemia In Adolescent Girls

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Abstract
*Young women's lack of knowledge about anemia and the benefits of low blood pressure, will affect young women's compliance in taking iron tablets as recommended by health workers. Prevention of anemia can be done by improving the behavior of young women in preventing anemia. Research objectives: Knowledge, attitude and adherence to taking iron tablets in young women with anemia at SMP Negeri 12 Palembang. This type of research is descriptive analytic with the Cross Sectional method where the researcher analyzes the relationship between the dependent variable and the independent variable with various approaches at one time, the sample used is 60 female students taken by purposive sampling method, data collection is done by filling out a questionnaire. There is a significant relationship between knowledge and the incidence of anemia in young women with a p-value = 0.037 and OR = 4.342. There is a significant relationship between attitude and the incidence of anemia in young women with a p-value = 0.054 and OR = 8.357. There is a significant relationship between compliance with the incidence of anemia in young girls at SMPN 12 with a p-value = 0.041 and OR = 3.953. **Conclusion:** There is a significant relationship between Knowledge, Attitude and Compliance with the incidence of anemia in young women in junior high school.*

Keyword: Knowledge, Attitude, Compliance, Anemia, Blood Supplement Tablets

INTRODUCTION

Adolescence is a critical period in a person's developmental cycle as preparation for entering adulthood. (Krapp & Wilson, 2005). The transitional developmental period between childhood and adulthood that adolescents go through includes biological, cognitive and social-emotional changes that occur ranging from the development of sexual function, abstract thinking processes to the period of independence (Santrock, 2003).

According to the *World Health Organization* (WHO), adolescents are individuals in the age range of 10 – 19 years and youth between the ages of 15 – 24 years. Regulation of the Minister of Health of the Republic of Indonesia Number 25 of 2014, explains that adolescents are residents in the age range of 10 – 18 years and according to the Population and Family Planning Agency (BKKBN) the age group of adolescents is individuals in the age range of 10 – 24 years and unmarried.

In adolescent girls who experience iron deficiency anemia / red blood cell deficiency will cause cognitive function to decrease, causing the process of receiving information to be inhibited and making learning concentration decrease. Not only does it reduce productivity but in turn leads adolescent girls to anemia conditions during pregnancy. Pregnant women who suffer from anemia will increase the risk of miscarriage, bleeding during childbirth and giving birth to a low-weight baby. (Susetyawati, 2016).

One of the causes of Anemia is the lack of consuming foods that contain iron. The limit of normal hemoglobin levels in the blood of a young woman is 12 mg/dl. The sign of someone having anemia is 5 L (Weak, Tired, Lethargic, Tired, Sluggish). Adolescent girls have a tenfold greater risk of developing anemia than adolescent boys. This is because adolescent girls experience menstruation every month and are in a growth period so they need more iron intake (Proverawati, 2011). The dangers of anemia if experienced by adolescent girls include delayed physical growth, behavioral and emotional disorders. This can affect the growth and development process of brain cells so that it

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can cause decreased immunity, easily weak and hungry, disturbed study concentration, decreased learning achievement and can result in low work productivity (Cahya, 2013).

Iron Deficiency Anemia will cause low intelligence quotient (IQ), decreased learning ability and decreased growth rate in children (Luh, 2015). The government hopes that through the program of providing Blood Supplement Tablets (BST) for adolescent girls, it can reduce the number of adolescent girls who experience anemia. The main factor in the implementation of the program is the adherence of adolescent girls to consume BST, which is influenced by knowledge so that a person's attitude can change. The level of compliance starts with heeding each recommendation until complying with the plan. However, there are still many adolescent girls who do not comply with BST consumption due to several factors, namely knowledge, attitude, teacher and parental support. Counseling about the benefits of blood supplement tablets is very important to increase the knowledge of adolescents so that counseling needs to be provided in order to change their behavior in consuming blood supplement tablets (Sediaoetama, 2014).

Based on Riskesdas data in 2018, there was an increase in anemia in pregnant women by 11.8% compared to 2013, namely 37.1% of pregnant women suffered from anemia in 2013 and in 2018 it increased to 48.9%. This happens because of the high prevalence of anemia in adolescent girls, which is 25% and 17% in WUS. A young woman is said to be obedient to consume Blood Supplement Tablets (BST) if in one year she has consumed BST as many as 52 tablets/tablet. The coverage of T BST consumption in adolescent girls <52 grains (96.8%) and ≥52 grains (1.4%). Meanwhile, 76.2% of adolescent girls who get BST and 23.8% who do not get it, of the number of adolescent girls who get BST as many as 80.9% at school and 19.1% do not get it at school (Riskesdas, 2018). From data collected by the South Sumatra Provincial Health Office in 2021, the achievement of adolescent girls who consume Blood Supplement Tablets still has not reached the target, which is 35.68% of the Ministry of Health's target of 52%. For this reason, strategies and activities are needed to increase adolescent girls' compliance with consuming BST.

In accordance with the Circular Letter of the Director General of Public Health of the Ministry of Health No. HK.03.03/V/0595/2016 concerning the Administration of BST to adolescent girls and women of childbearing age, that the provision of BST to adolescent girls is carried out through UKS/M in educational institutions (junior high and high school or equivalent) by determining the day of taking BST together. The dose given is one tablet every week throughout the year, while the coverage of giving blood supplement tablets to adolescent girls in South Sumatra Province has only reached 39.4% (Indonesian Health Profile, 2020)

Anemia in adolescents is a problem that the government is concerned about. Many adolescent girls experience anemia in adolescence, due to their non-compliance with consuming BST. Compliance with consuming BST is related to several factors, such as adolescent girls' knowledge about anemia and the benefits of BST is lacking, so that there are still many adolescent girls who do not comply with consuming 1 tablet in the Blood Supplement Tablet (BST) distribution program is a routine program from the government for the prevention and prevention of anemia in adolescents.

Lack of knowledge about blood supplement tablets will affect adolescent girls' compliance, adolescent women's compliance in taking blood supplement drugs as recommended by health workers is very important for adolescents in preventing anemia in adolescents, Prevention of anemia can be done by improving the behavior of adolescent girls, one of the factors that affect adolescent behavior in preventing anemia is knowledge.

According to the Indonesian Journal of Public Health Media, factors that can affect adherence to the consumption of blood supplement tablets are adolescent girls' knowledge about anemia, and the support of adolescent girls' families. Adolescent girls who have less knowledge levels are 4.998 times more likely to not take 1 blood-boosting tablet/week compared to adolescent women who have enough or good knowledge. Family support, especially parents, plays an important role in adherence to taking blood supplement tablets, this support is needed to foster

positive beliefs and perceptions of adolescent women about the importance of taking blood supplement tablets to prevent the risk of anemia. (Fatma Ryalda Samputri∗, Novera Herdiani).

RESEARCH METHODS

The design of the Descriptive Analytical research is based on a *cross sectional method* in which the researcher analyzes the relationship between dependent variables and independent variables with various approaches or data collection at one time.

The research was conducted at SMP Negeri 12 with the address Jalan Mataram Kemas Rindo Kertapati Palembang.

The population in this study is all 8th grade students of SMP Negri 12 who were randomly taken to be respondents totaling 138 people, while the sample amounted to 60 samples with a simple random sampling technique.

RESULTS AND DISCUSSION

1. Univariate Results

In this study, the research variables consisted of Knowledge, Attitude, Compliance and Anemia.

a. Knowledge of young girls at SMPN 12 Palembang City

The knowledge variables in this study are categorized into two, namely good knowledge and poor knowledge. The distribution of knowledge frequencies in 60 research samples can be seen in table 1 below:

Table 1
Distribution of Knowledge Frequency of Adolescent Girls in SMPN 12
Palembang City in 2023

It	Knowledge	N	%
1	Good	34	56,7
2	Not Good	26	43,3
	Total	60	100%

Based on table 1, it is known that the knowledge of adolescent girls on adherence to taking blood supplement tablets is good, namely 34 (56.7%) of 60 respondents.

b. Attitude of young girls at SMPN 12 Palembang City

The Attitude variables in this study are categorized into two, namely Positive Attitudes and Negative Attitudes. The distribution of attitude frequencies in 60 research samples can be seen in table 2 below:

Table 2
Distribution of Frequency of Adolescent Women's Attitudes in SMPN 12
Palembang City in 2023

It	Attitude	N	%
1	Positive	14	23.3
2	Negative	46	76.7
	Total	60	100%

Based on the results of table 2, it is known that the attitude of adolescent girls towards adherence to taking blood-boosting tablets is negative 46 (76.7%) of 60 respondents.

c. Adolescent girls' compliance at SMPN 12 Palembang City

The compliance variables in this study are categorized into two, namely obedient and non-compliant. The distribution of compliance frequency in 60 research samples can be seen in table 3 below:

Table 3
Distribution of Adolescent Girls' Compliance Frequency at SMPN 12
Palembang City in 2023

No	Compliance	N	%
1	Obedient	29	48.3
2	Non-compliant	31	51.7
	Total	60	100%

Based on table 3, it is known that adolescent girls who take blood supplement tablets are the majority of non-compliant 31 (51.7%) out of 60 respondents.

d. Anemia of adolescent girls at SMPN 12 Palembang City

The anemia variables in this study are categorized into two, namely anemia and non-anemia. The distribution of anemia frequency in 60 research samples can be seen in table 4 below:

Table 4
Distribution of Frequency of Anemia in Adolescent Girls in SMPN 12
Palembang City in 2023

No	Anemia	N	%
1	Anemia	19	31,7
2	No Anemia	41	68,3
	Total	60	100

Based on table 4, it is known that the frequency distribution of anemia among adolescent girls to adherence to taking blood-boosting tablets is 41 (68.3%) of the 60 respondents.

2. Bivariate Analysis

The bivariate analysis in this study aims to assess whether there is a relationship between the independent variable and the dependent variable (Knowledge, attitude and compliance) and the dependent variable namely anemia. The results of the analysis by looking at *the alpha* value so that it can be interpreted if $\alpha < 0.05$, it can be concluded that there is a meaningful relationship between the independent variable and the dependent variable. The statistical test used in this study is *chi square* to test the hypothesis with categorical data using a 2x2 table with nominal and ordinal scales.

a. The Relationship between Knowledge and the Incidence of Anemia at SMPN 12 Palembang City in 2023.

The results of the analysis of the relationship between adolescent knowledge and the incidence of Anemia at SMPN 12 Palembang City in 2023 on 60 research samples can be seen in table 5 below:

Table 5
The Relationship between Knowledge and the Incidence of Anemia
at SMPN 12 Palembang City in 2023

Variable	Criterion	Incidence of Anemia						*p Value*	OR (CI 95%)
		No Anemia		Anemia		Sum			
		n	%	*n*	%	*N*	%		

Knowledge	Good	19	84,6%	4	15,4%	26	100	0,037	4,342 (1,229 - 15.342)
	Less	22	55,9%	15	44,1%	34	100		
Sum		41	50%	19	50%	60	100		

The results of the analysis in table 4.5 showed that the relationship between the incidence of anemia and those who were not anemia and good knowledge was lower than the incidence of anemia and lack of knowledge of 22 (55.9%) of 34 respondents. The results of the statistical test using *chi square* obtained a *p-value* of 0.037 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent knowledge and the incidence of Anemia at SMPN 12 Palembang City in 2023. The results of the analysis also obtained a value of OR = 4.342, meaning that adolescents with poor knowledge have a 4.3 times chance of anemia compared to good adolescents' knowledge.

b. The Relationship between Attitude and the Incidence of Anemia at SMPN 12 Palembang City in 2023.

The results of the analysis of the relationship between adolescent attitudes and the incidence of Anemia at SMPN 12 Palembang City in 2023 on 60 research samples can be seen in table 6 below:

Table 6
The Relationship between Attitude and the Incidence of Anemia
at SMPN 12 Palembang City in 2023

Variable	Criterion	Incidence of Anemia				Sum		p Value	OR (CI 95%)
		No Anemia		Anemia					
		n	%	n	%	N	%		
Attitude	positive	28	92,9%	1	7,1%	46	100	0,026	8,357 (1,005 - 69.512)
	negative	13	60,9%	18	39,1%	14	100		
Sum		41	50%	19	50%	60	100		

The results of the analysis of table 6, it was found that the relationship between positive attitudes that were not anemia 28 (92.9%) of 46 respondents was higher when compared to negative attitudes that were not anemia 13 (60.9%) of 46 respondents. The results of the statistical test using *chi square* obtained *a p-value* of 0.026 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent attitudes and the incidence of Anemia at SMPN 12 Palembang City in 2023. The results of the analysis also obtained a value of OR = 8.357, meaning that the negative attitude of adolescents has an opportunity of 8.357 times for anemia compared to the attitude of adolescents with a positive category.

c. The relationship between Compliance and the incidence of Anemia at SMPN 12 Palembang City in 2023.

The results of the analysis of the relationship between adolescent compliance and the incidence of Anemia at SMPN 12 Palembang City in 2023 on 60 research samples can be seen in table 7 below:

Table 7
Relationship between Compliance and Anemia Incidence
at SMPN 12 Palembang City in 2023

Variable	Criterion	Incidence of Anemia						*p* Value	OR (CI 95%)
		No Anemia		Anemia		Sum			
		N	*%*	*N*	*%*	*N*	*%*		
Compliance	Obedient	17	54,8%	14	45,2%	31	100	0,041	3,953 (1,196 - 13.063)
	No Obedient	24	82,8%	5	17,2%	29	100		
Sum		41	50%	19	50%	60	100		

The results of the analysis of table 7, it was found that the relationship between compliance and the incidence of non-anemia with obedience was lower by 17 (54.8%) from 31 respondents when compared to the incidence of anemia with obedience 24 (82.8%) from 29 respondents. The results of the statistical test using *chi square* obtained a *p-value* of 0.041 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent compliance and the incidence of Anemia at SMPN 12 Palembang City in 2023. The results of the analysis also obtained a value of OR = 8.357, meaning that adolescents who do not obey have a 3.953 times chance of developing anemia compared to adolescents with the obedient category.

Discussion

1. Knowledge of adolescent girls about blood booster tablets at SMPN 12 Palembang City in 2023.

Based on the results of the study, it is known that adolescent girls with poor knowledge are 26 (43.3%) smaller than adolescent girls with good knowledge 34 (56.7%) at SMPN 12 Palembang City in 2023.

The results of this study are in line with the research conducted by (Riya & Dari, 2021; Subratha, 2020) that the level of knowledge of adolescent girls about anemia is in the good knowledge category (88.3%). In addition, research conducted by (Angrainy et al., 2019) that most teenagers have good knowledge in consuming Fe tablets at the time of menstruation. Research conducted (Adnyana et al., 2021) The results were obtained that the majority of young women were in the category of good knowledge as many as 48 respondents (78%). This condition is supported by the results of the 2012 Indonesian Basic Health Survey related to adolescents' knowledge about anemia is still in the category of quite good (Kemenkes RI, 2022a; Sari, P dkk, 2022).

2. Attitudes of young women about blood supplement tablets at SMPN 12 Palembang City in 2023.

Based on the results of the study, it is known that adolescent girls with a positive attitude of 14 (23.3%) are smaller than adolescents with a negative attitude of 46 (76.7%) at SMPN 12 Palembang City in 2023.

The results of the research that has been carried out are different from those that have been related to (Cereal & Nuryeti, 2021) that adolescent girls with a positive attitude (61.1%), but with a negative attitude tend to trigger anemia in adolescents. It is also proven by the research conducted (Kasumawati et al., 2020) who get the results of adolescent attitudes in the less category. In addition, the research conducted (Firmansyah & Fazri, 2022) with the results of positive and negative attitudes having the same value.

3. Adolescent girls' compliance in taking blood supplement tablets at SMPN 12 Palembang City in 2023.

Based on the results of the study, it was found that adolescent girls in the obedient category were 29 (48.3%) compared to adolescent girls with non-compliance 31 (51.7%) at SMPN 12 Palembang City in 2023.

Results of the research conducted (Adnyana et al., 2021) that adolescent girls tend to be non-compliant in consuming fe tablets (TTD) as many as 38 respondents (61%). In addition to consuming fe tablets, adolescent girls can use nutritional sources that can be sourced from dates and young coconut water which have been proven to have an effect on increasing hemoglobin in adolescent girls who experience anemia (Ilahi et al., 2019). The results of the Ministry of Health's basic health research (riskesda) in 2018 recorded that 26.8% of people with anemia at the age of 5-14 and 32% of anemia suffered from 15-24 years old which is closely related to compliance in consuming blood-boosting tablets (TTD) (Kemenkes RI, 2022a, 2022b).

4. **Incidence of Anemia in adolescent girls at SMPN 12 Palembang City in 2023.**

Based on the results of the study, it is known that adolescent girls with anemia category are 41 (68.3%), while adolescent girls with non-anemia are 19 (31.7%) at SMPN 12 Palembang City in 2023.

In the national strategic plan for the health sector, one of the goals of the maternal and child nutrition and health program is the provision of blood supplement tablets (TTD) for adolescents. Adolescence as a phase of very rapid growth, of course, if the needs in the growth process cannot be met, it can have an impact on stunting, a decrease in immunity so that the adolescent body is easily infected, which as a result has an impact on the decrease in the activity and learning ability of adolescent girls (Nuraisya W et al., 2021).

Research conducted by (Ilahi et al., 2019) It is known that some adolescent girls experience anemia (50.5%). The results of the Ministry of Health's basic health research (riskesda) in 2018 recorded that 26.8% of people with anemia at the age of 5-14 and 32% of anemia suffered from 15-24 years old which is closely related to compliance in consuming blood-boosting tablets (TTD) (Kemenkes RI, 2022a, 2022b).

5. **The relationship of knowledge with the incidence of Anemia in adolescent girls at SMPN 12 Palembang City in 2023**.

Based on the results of the study, it is known that 19 (55.9%) of adolescents have good knowledge of anemia. Meanwhile, among adolescents' poor knowledge, there are 22 (84.6%) who are anemic. The results of the statistical test using *chi square* obtained a *p-value* of 0.037 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent knowledge and the incidence of Anemia at SMPN 12 Palembang City.year 2023. The results of the analysis also obtained a value of OR = 4.342, meaning that adolescents with poor knowledge have a 4.3 times chance of anemia compared to good adolescents' knowledge.

Young women who have good knowledge will be more careful or careful in preventing anemia based on their knowledge (Kusnadi, 2021). Because knowledge and the incidence of anemia because adolescents who have good knowledge will change their mindset and influence the behavior that will be carried out so that the better the knowledge, the greater the hope of avoiding anemia, but on the contrary, the less good the knowledge, the higher the risk of anemia(Podungge, Y & Mile, SYW, 2021). However, other studies showed results that there was no association between knowledge and the incidence of anemia (Dieniyah et al., 2019)**.**

6. **The relationship between attitudes and the incidence of Anemia in adolescent girls at SMPN 12 Palembang City in 2023.**

Based on the results of the study, it is known that 28 (60.9%) positive adolescent attitudes are anemic. Meanwhile, among the negative attitudes of adolescents, there were 13 (92.9%) who were anemic. The results of the statistical test using *chi square* obtained a *p-value* of 0.054 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent attitudes and the incidence of Anemia at SMPN 12 Palembang City

in 2023. The results of the analysis also obtained a value of OR = 8.357, meaning that the negative attitude of adolescents has an opportunity of 8.357 times for anemia compared to the attitude of adolescents with a positive category.

Research conducted by (Riya & Dari, 2021; Silitonga & Nuryeti, 2021) that there is a relationship between attitude and the incidence of anemia. Different results of research conducted by (Kasumawati et al., 2020) that there is no relationship between attitude and the incidence of anemia, because each adolescent's physical condition is different, depending on the condition of immunity and other influencing factors, while attitude is a perception.

Adolescents with negative attitudes are more at risk of anemia. This is certainly influenced by the response that a person makes to the action that will be taken after knowing about the information that has been obtained. Given that adolescence is a transitional phase, there are often doubts about the actions to be taken.

6. The relationship between compliance and the incidence of Anemia in adolescent girls at SMPN 12 Palembang City in 2023.

Based on the results of the study, it is known that 17 (54.8%) adolescent compliance with the category of anemia occurs, while among adolescent compliance with the non-compliance category there are 24 (82.8%) who are anemic. The results of the statistical test using *chi square* obtained a *p-value* of 0.041 smaller than α 0.05 which means that ho was rejected so that it was stated that there was a meaningful relationship between adolescent compliance and the incidence of Anemia at SMPN 12 Palembang City in 2023. The results of the analysis also obtained a value of OR = 8.357, meaning that adolescents who do not obey have a 3.953 times chance of developing anemia compared to adolescents with the obedient category.

Results of the research conducted (Savitri et al., 2021) that there is a relationship between compliance with the consumption of blood-boosting tablets (TTD) to the incidence of anemia in adolescent girls in Indonesia. Similar research conducted by (Putra et al., 2020) that there is a relationship between compliance with the consumption of fe tablets and the incidence of anemia in adolescents in Bondowoso so that counseling is needed on the importance of blood supplement tablets (TTD)

CONCLUSION

Based on the discussion of the results of research conducted on Knowledge, Attitude and Compliance with Taking Blood Supplement Tablets against Anemia in Adolescent Girls at SMP Negeri 12 Palembang in 2023, the following conclusions were reached:
1. Knowledge of Blood Supplement Tablets in the majority of adolescent girls at SMP Negeri 12 Palembang
2. It is known that the attitude of taking blood supplement tablets in adolescent girls is mostly negative at SMP Negeri 12 Palembang.
3. It is known that the adherence to taking blood supplement tablets in adolescent girls is the majority of non-compliance at SMP Negeri 12 Palembang.
4. It is known that anemia in adolescent girls, the majority of whom are not anemic at SMP Negeri 12 Palembang.

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