NON-COMPLIANCE OF BLOOD SUPPLEMENT TABLETS CONSUMPTION AMONG ADOLESCENT GIRLS IN SENIOR HIGH SCHOOL 1 KEPAHIANG, BENGKULU PROVINCE, INDONESIA

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Abstract

Background: Anemia remains a significant concern, particularly among adolescent girls in Indonesia. To combat this, one of the key strategies implemented has been the regular weekly distribution of blood supplement tablets, which requires consistent consumption to be effective. Unfortunately, adherence to this regimen remains low. Knowledge is recognized as a crucial factor in influencing behavioral changes. **Method:** This study explores the correlation between the level of knowledge and adherence to consuming blood supplement tablets among adolescent girls at SMAN 1 Kepahiang, Bengkulu Province, Indonesia. This study employed a quantitative analytic design with a cross-sectional approach. The sample consisted of 219 adolescent girls at SMAN 1 Kepahiang **Result:** The findings revealed that most participants had a poor level of knowledge, with 188 respondents (85.8%) falling into this category. A smaller proportion, 25 respondents (11.4%), demonstrated sufficient knowledge, while only 6 (2.7%) exhibited good knowledge. In terms of compliance with taking blood supplement tablets, 208 respondents (95.0%) were non-compliant, and just 11 (5.0%) were compliant. The Spearman rank analysis showed a p-value of 0.000 (which is less than 0.05) and an r-coefficient of 0.598, indicating a strong relationship. **Conclusion :** The level of knowledge correlates with the compliance of adolescent girls in consuming blood supplement tablets with strong relationship. Schools are advised to increase cooperation with related parties to evaluate and monitor the sustainability of the program and develop programs towards mentoring with various media approaches to adolescent girls.

keyword : Blood Tablets, Compliance, Knowledge, Adolescent Girls, Anemia

INTRODUCTION

Anemia in adolescents is a condition where the number of red blood cells or hemoglobin levels fall below normal limits. According to the WHO's 2021 World Health Statistics, the global prevalence of anemia among women

of reproductive age (15-49) is approximately 29.9% (*WHO, 2021*). In Indonesia, the 2018 Basic Health Research (Riskesdas) reported that 32% of adolescents are affected by anemia, meaning that 3-4 out of every 10 adolescents suffer from this condition *(RI, 2018*). Specific data from the Bengkulu City Health Office in 2019 revealed that in Bengkulu Province, 32% of those aged 15-24 years, 74 adolescents (0.22%) aged 10-14 years, and 104 adolescents (0.25%) aged 15-19 years were affected by anemia. In Kepahiang Regency, the incidence of anemia among adolescent girls was recorded at 18.4% (*Bengkulu, 2020*). To combat this issue, the government has implemented measures such as providing weekly blood supplement tablets, especially during menstruation, which contain 60 mg of elemental iron and 0.25 mg of folic acid to help prevent anemia. Schools are tasked with distributing these supplements to adolescent girls and ensuring they are taken once a week collectively.

Research in 2020 supports the effectiveness of these blood supplements in reducing anemia among adolescent girls (*McLoughlin, 2020*). Similarly, a study conducted among schoolgirls in Ghana, West Africa, demonstrated that a weekly blood supplement program significantly lowered the prevalence of anemia (*Chauke et al., 2022*). However, data from the 2018 Riskesdas in Indonesia showed that only 1.4% of adolescent girls took 52 or more supplements within a year, while 98.6% took fewer than 52, indicating that most are not consistently adhering to the recommended intake (*RI, 2018*). This figure is still well below the government's 2024 target, which aims for 58% of adolescent girls to regularly consume the supplements.

METHOD

This study employed an analytic quantitative method with a Cross-Sectional approach, conducted between January and February 2024. The research focused on all 693 adolescent girls attending Public Senior High School (SMAN) 1 Kepahiang in Bengkulu Province, Indonesia. The minimum sample size was determined using the Lemeshow formula, resulting in a requirement of 219 participants. Sampling was

carried out through a Simple Random Sampling technique, where randomization of the research samples was facilitated using Microsoft Excel. The entire population was sorted by serial numbers, and the samples were then selected based on the randomization results.

The study categorized the level of knowledge into three groups: good, fair, and poor, while compliance was classified into two categories: compliant and non-compliant. Data collection instruments included a knowledge-level questionnaire regarding blood consumption tablets (*Pratiwi, 2022*) and the 8-item Morisky Medication Adherence Scale (MMAS) (*Tania et al., 2019*). Both questionnaires had previously undergone validity and reliability testing in Indonesia. The study was declared ethically feasible according to the seven WHO Standards of 2011 in alignment with the 2016 CIOMS Guidelines and valid from January 22, 2024, to January 22, 2025, under ethical exemption number KEPK.BKL/595/01/ 2024 issued by the Health Polytechnic, Ministry of Health, Bengkulu.

Statistical data were analyzed using SPSS version 23.0, applying cross-tabulation and Spearman Rank methods. The Spearman Rank was particularly used to determine the relationships between variables, with a 95% confidence level. The sample included characteristics like age, class, health conditions, and any contraindications related to blood supplement consumption. Data processing involved four stages: verifying questionnaire completeness (editing), coding data, entering data into Excel and SPSS (entry), and performing a final check (cleaning).

RESULT AND DISCUSSION

Among the adolescent girls surveyed, 3 were 15 years old (1.4%), 78 were 16 years old (35.6%), and 95 were 17 years old (43.4%). In terms of class distribution, 69 participants were from the Merdeka class (31.5%), 73 from the XI class (33.3%), and 77 from the XII class (35.2%). Most respondents reported mild conditions like skin disorders, coughs, and flu that were not severe enough to hinder blood supplement consumption. No participants had severe diseases that

would prevent them from taking the supplements. Of the 219 respondents from SMAN 1 Kepahiang, the majority had poor knowledge regarding blood supplements, with 188 respondents (85.8%) falling into this category. Meanwhile, 25 respondents (11.4%) had a sufficient understanding, and only 6 (2.7%) demonstrated good knowledge.

When it came to compliance with blood supplement consumption, the majority of the 219 respondents were non-compliant, with 208 respondents (95.0%) not following the recommended regimen, while only 11 respondents (5.0%) adhered to it (see Table 1).

Table 1. Frequency Distribution of Characteristics of Adolescent Girls of SMAN 1 Kepahiang

Characteristics	Frequency	
	n	%
Age		
• 15 years	3	1.4%
• 16 years	78	35.6%
• 17 years	95	43.4%
• 18 years	43	19.6%
Class		
• Merdeka class	69	31.5%
• Class XI	73	33.3%
• Class XII	77	35.2%
Knowledge		
• Good	6	2.8%
• Fair	25	11.4%
• Poor	188	85.8%
Compliance		
• Compliant	11	5.0%
• Non-compliant	208	95.0%

The analysis of age and class as confounding variables revealed no significant relationship with compliance in taking blood supplements. The age variable had a p-value of 0.208, which is greater than 0.05, and a rho coefficient of -0.086, indicating no or negligible relationship. Similarly, the class variable showed a p-value of 0.0031, slightly below 0.05, with a rho coefficient of -0.146, also suggesting no or negligible relationship (see Tables 2 and 3).

Table 2. Results of Confounding Variable Analysis

Class	Age (years)	Compliance				Total		*P-value*	*r*
		Compliant		Non-compliant					
		F	%	F	%	F	%		
•	15	0	0	3	100	3	100	0.203	-0.086
•	16	2	2.6	76	97.4	78	100		
•	17	6	6.3	89	93.7	95	100		
•	18	3	7	40	93	43	100		
Total		11	5	208	95	219	100		
•	10	1	1.4	68	98.6	69	100	0.031	-0.146
•	11	3	4.1	71	95.9	74	100		
•	12	7	9.2	69	90.8	76	100		
Total		11	5	208	95	219	100		

Tabel 3. Spearman Rho Relationships Level (Adapted From Dancey and Reidy(Leclezio et al., 2015))

Spearman's Rho	Correlation
≥ 0.70	Very Strong Relationship
0.40 – 0.69	Strong Relationship
0.30 – 0.39	Moderate Relationship
0.20 – 0.29	Weak Relationship
0.01 – 0.19	No or Negligible Relationship

The bivariate test using the Spearman Rank method produced a p-value of 0.000, which is less than 0.05, indicating a correlation between knowledge level and compliance with blood supplement consumption among adolescent girls at SMAN 1 Kepahiang. The correlation coefficient was 0.598, reflecting a strong relationship between these two variables (see Table 4).

Table 4. Correlation Between Knowledge Level and Adherence to Blood Supplement Tablets Consumption Among Adolescent Girls at SMAN 1 Kepahiang

Knowledge	Compliance				Total		*p-value*	*r*
	Compliant		Non-compliant					
	F	%	F	%	F	%		
Good	6	100	0	0	6	100	0.000	0.598
Fair	5	20	20	80	25	100		
Poor	0	0	188	100	188	100		
Total	11	5.0	208	95.0	219	100		

The study involving 219 students from SMAN 1 Kepahiang in Bengkulu Province, Indonesia, revealed that a striking majority, 188 respondents (85.8%), had poor knowledge about blood supplement tablets, while only a small fraction, 6 respondents (2.7%), demonstrated good knowledge. This aligns with research by Simanungkalit, S. F., and Simarmata, O. S. (2019) conducted at SMA Muhammadiyah 4 Depok and SMK Al-Hidayah Cinere, which found that 150 respondents (87.2%) had poor knowledge, and only 22 (12.8%) had a good understanding of blood supplement tablets (*Simanungkalit and Simarmata, 2019*). Understanding the importance of weekly tablets is crucial for shaping adolescents' behavior towards their consumption. Knowledge directly impacts attitudes and behaviors, making it challenging for individuals to appreciate the benefits without proper understanding. As highlighted in the literature, knowledge is a critical factor in ensuring adherence to medication regimens (*Chauke et al., 2022*).

Knowledge comprises both positive and negative aspects that shape an individual's attitude—more positive knowledge tends to foster a positive attitude. Several factors, including education, access to information, socio-cultural influences, and personal experience, contribute to one's level of knowledge (Agustina, 2019). The prevalent lack of knowledge in these studies is largely attributed to a lack

of counseling, reinforcing the idea that without proper information, behavior toward blood supplement consumption remains inadequate. When it comes to compliance, the results showed that out of 219 adolescent girls at SMAN 1 Kepahiang, a significant 208 (95.0%) were non-compliant with consuming blood supplement tablets, leaving just 11 respondents (5.0%) who were compliant. This finding is consistent with the research by Tirthawati, S. et al. (2020), where only 13 respondents (17.8%) at SMK 1 Bangsri, Jepara Central Java, were compliant, while a majority of 60 respondents (82.2%) were not. The primary reasons for non-compliance included the unpleasant smell and taste of the tablets, as reported by 23 respondents (31.5%) (*Tirthawati et al., 2020*).

Similarly, Ratnawati, A. E. (2022) found that non-compliance was prevalent among 47 students (95.9%), with reasons such as nausea (36.7%), fishy odor (16.3%), and general unpleasantness (10.2%) being frequently cited. These findings underscore the need for more effective strategies to address the barriers to compliance in this population (*Ratnawati, 2022*). This statement is supported by a study that found the color and smell of blood supplement tablets to be the top three reasons for not consuming them, where research in East Java and East Nusa Tenggara reported that many adolescent girls were reluctant to consume those tablets because they felt side effects, bad taste, and a fishy smell that caused nausea (*Widiastuti and Rusmini, 2019*).

A Study in 2023, stated that the blood supplement tablets program for adolescent girls in Pekanbaru City, Indonesia still has several obstacles in monitoring the implementation of the program, there are still many adolecent girls who do not want to consume them because they do not like taking medicine and feel they do not need it *(Yanti et al., 2023*). This occurs with the results that an interview with one of the young women said that every month they get it but she does not routinely consume them every week.

Compliance is a willingness to act, not an implementation of certain motives *(Notoatmodjo, 2018)*. It is a form of human behavior that

obeys the rules, orders set, procedures, and disciplines that must be carried out. The low compliance of adolescent girls in consuming weekly tablets is due to the lack of direct monitoring and support from health workers, and teachers at school. School support can improve adherence to blood supplement consumption in adolescent girls in Ghana West Africa *(Gosdin et al., 2020)*. Currently, the Indonesian government has launched an application for monitoring blood supplement tablet consumption compliance in adolescent girls, but this application has not been implemented in this school.

A school is a supportive place for adolescent girls to create compliance. This is because adolescent girls tend to spend their time at school. The school has scheduled a consumption program once a week together and at school can monitor by the teacher in consuming of supplement tablets. Education is one form of intervention to increase knowledge and awareness of adolescent girls as an effort to prevent and control anemia *(Hartono et al., 2023)*. The results of the investigation at the school obtained information that there was no education on the importance of blood supplement consumption. This is due to the lack of counseling for female students. Knowledge can affect a person's health behavior, higher a person's education easier it is to receive information. Factors that influence the level of expertise include education, information through mass media, economic situations, social relationships, and individual experience *(Kamila and Prahayu, 2022)*.

The results of statistical tests using the Spearman Rank obtained a p-value of 0.000 <0.05, which means that there is a relationship between the level of knowledge and compliance with blood supplement consumption among adolescent girls at SMAN 1 Kepahiang. From the results of the study teenage girls with good understanding, are obedient in consuming it. A strong relationship between the level of knowledge and compliance with blood supplement tablet consumption can show that the better the knowledge, the better the level of compliance.

Research by Sari, D, P et al (2020) stated that the results were the same at class X in SMKN 1 Klaten with evidence of a p-value of 0.02, this happens because if there is no knowledge, it will be difficult to instill obedient habits in consuming it. Compliant with taking weekly supplement is strongly influenced by oneself and the surrounding environment, especially teachers who are in the school environment. The degree of non-compliance is determined by several factors, one of which is motivation, support from family members, and oneself *(Niven, 2019)*. Research on adolescent girls in Tamale Metropolis Ghana stated that there was a significant relationship between knowledge and compliance with blood supplement consumption. In ensuring high blood supplement tablets compliance, it is necessary that effective health education strategies can be further enhanced through the creation of a school environment that supports the program *(Dubik et al., 2019)*. The main actors in creating this environment are homerooms and teachers to motivate all adolescent girls. The health center and teachers sit together to develop strategies to improve the compliance of female students in consuming it, Teacher support includes reminding, supervising, controlling, and providing information about the benefits of it. Studies on adolescents in India emphasize that close supervision by teachers will result in better adherence to their consumption *(Wangaskar et al., 2021)*. Teacher support is a factor influencing the level of compliance of female students to remind them to consume it and provide information on consuming blood supplements as recommended. Support in the form of teacher control in supervising students at school to increase knowledge about it *(Dubik et al., 2019)*. Knowledge is needed to encourage attitudes and behavior every day, so it can be said that knowledge is a stimulation to one's actions.

CONCLUSION AND SUGGESTION

The knowledge of adolescent girls about the meaning, benefits, and purpose of consuming bloods supplement tablets in adolescents needs to be continuously improved,

but if the behavior is not based on knowledge, it will not last for a while *(Sari et al., 2020)*. The level of knowledge determines the level of compliance of adolescent girl in consuming blood supplement tablets.

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