







KNOWLEDGE AND ATTITUDE WITH ADHERENCE TO FE TABLET CONSUMPTION IN ANEMIC ADOLESCENT GIRLS

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Abstract

Background: Iron anemia could be prevented through the administration of Fe tablets (TTD). Several studies had shown that one of the obstacles often encountered in the Fe tablet administration program was the problem of compliance. The low compliance of Fe tablets consumption in adolescent girls was influenced by several factors, one of which was the knowledge of female students regarding the benefits of consuming Fe tablets. Knowledge affected the attitudes and behavior of adolescents in choosing food, consuming Fe tablets supplementation, and further affected the overall nutritional condition of individuals including the condition of anemia status. **Objective:** This study aimed to demonstrate the connection between attitudes and knowledge about adherence to Fe tablets use in anemic adolescents at Pondok Pesantren Mambaus Sholihin, Gresik District, East Java. **Methods:** This type of research was quantitative research with a cross-sectional design, sampling using the total sampling method. Method in this research was an analytical observational study with a cohort retrospective design. The samples in this study were 81 adolescent girls aged 15-17 years who experienced anemia. The variables used in this study were knowledge, attitude and compliance. The instruments used were questionnaires and checklist forms. Compliance with Fe tablet consumption was carried out for the last 3 months. **Results:** Most respondents had sufficient knowledge related to anemia and Fe tablets around (31.1%) and most responders had a positive attitude of (56.8%) most respondents were not compliant with the consumption of Fe tablets by (58.0%). After the chi square test, the significance value ($p=0.002$) was obtained, which means that statistically there is a significant relationship between knowledge and Fe tablet consumption, and ($p=0.000$) there is a significant relationship between attitude and Fe tablet consumption. **Conclusion:** The study concluded that among teenage girls attending the Mambaus Sholihin Islamic Boarding School, there was a relationship between knowledge and attitude regarding the intake of Fe tablets.

Keywords: knowledge, attitude, practice, anemia, Fe tablets, adolescent

INTRODUCTION

According to the World Health Organization (WHO), the prevalence of anemia in the world is around 40-88%, while in developing countries 30% of the population experiences anemia, one of which is Indonesia (Andriani et al., 2021). In Indonesia, anemia is a serious health issue in adolescent girls, which is 47.9%.

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In Indonesia, adolescent girls' anemia prevalence aged 15-24 years is 27.2%, while in adolescent boys it is 20.3%. Based on Basic Health Research (RISKESDAS) in 2018, the incidence of anemia in the age range of 15-24 years in Indonesia was 32% (Ramlah et al., 2022).

Anemia is a condition where the hemoglobin (Hb) level is less than usual in the blood, which in adolescent women is normal hemoglobin 12-15 g/dl. Anemia in adolescent girls is brought on by a deficiency of nutrients that are necessary for the synthesis of hemoglobin, one of which is iron (Junita and Wulansari, 2021). This is because adolescent girls lose iron (Fe) during menstruation so they need to consume more iron (Fe) (Budiarti et al., 2021). Another thing that can cause anemia is the behavior of adolescent girls who eat more plant-based foods, resulting in insufficient daily iron intake (Budiarti et al., 2021) and consume foods that interfere with the iron absorption process simultaneously such as coffee and tea (Junita and Wulansari, 2021).

In anemia, there are different causative factors experienced by adolescent girls. Several studies also mention the factors that cause anemia in adolescent girls, according to (Anggoro, 2020) there is an influence between knowledge and the prevalent of anemia in class X adolescent girls. Other nutrients, like protein, also have a substantial impact on the body's ability to transfer iron. A low protein diet will cause the transit of iron to be delayed, leading to an iron shortage and anemia.

Iron anemia can be prevented through the administration of Fe tablets, education, and efforts related to increasing iron intake, controlling infections, and fortification of iron and protein in food (Putra et al., 2020). To overcome the problem of anemia, the Indonesian government through the Ministry of Health provides an iron supplement program targeting adolescent girls. Several studies show that one of the obstacles that is often encountered from the Fe tablet administration program is the problem of compliance (Setyaningtyas et al., 2020).

Compliance in consuming Fe tablets is one of the factors that is confirmed to be most significant for the success of the Fe tablet supplementation program, as well as the provision of Fe tablets and their distribution system. The understanding of female students about the advantages of taking Fe tablets is one of the variables influencing the low compliance of adolescent girls with Fe tablet use. Knowledge



will affect the attitudes and behavior of adolescents in choosing food, consuming Fe tablets, and will further affect the overall nutritional condition of individuals including the condition of anemia status. The aim of the research was to ascertain whether there is a relation between knowledge and attitudes and compliance with Fe tablet consumption in anemic adolescent girls.

METHOD

An observational analytical research design was employed in this study with the population being adolescent girls of MA Pondok Pesantren Mambaus Sholihin Gresik District, East Java. The analysis used in this research is quantitative analysis. This research was conducted in September 2023 and the sampling method used non probability sampling, the number of samples was 81 people with purposive sampling method. The variables used in this study were knowledge, attitude and compliance. Filling out questionnaires and gathering check list forms were the methods used to obtain data. The Fe tablet consumption checklist form was observed for 3 months. The criteria taken were anemic adolescent girls at the Senior High School (MA) level in Gresik District, East Java, who were willing to fill out a questionnaire sheet in September 2023. The ethical clearance number for this study was 301/EC/KEPK/FKUA/2023. The collected data were recorded for entry and processed using Microsoft Excel and SPSS2.5. Data were analyzed univariately and bivariately in SPSS 2.5 using the chi square test with a 95% confidence level.

RESULT AND DISCUSSION

Result

Adolescent girls of Pondok Pesantren Mambaus Sholihin Gresik District, East Java in this study were taken in grade 11. In general, the majority of anemic adolescent girls are at the age of 17 years. Most people who are anemic in adolescent girls have a hemoglobin level of 11.9 g/dl.

Table 1 Sample distribution based on hemoglobin level

Hemoglobin Level	Frequency (f)	Percentage (%)
8-<9	1	1.20
9-<10	4	5.00
10-<11	18	22.20
11-<12	58	71.60
Total	81	100.00

Univariate Analysis

Table 2 Frequency Distribution Based on Adolescents' Knowledge About Anemia and Fe Tablets at Mambaus Sholihin Islamic Boarding School, Gresik Regency, East Java

Level of Knowledge	Frequency (f)	Percentage (%)
Good	22	27.20
Sufficient	26	32.10
Less	33	40.70
Total	81	100.00

According to the above table 2, it is known that the knowledge of adolescent girls in the good category is 22 respondents (27.2%), the knowledge of adolescent girls in the sufficient category is 26 respondents (32.1%), while the knowledge of adolescent girls in the poor category is 33 respondents (40.7%).

Table 3 Frequency Distribution Based on Adolescents' Attitudes About Anemia and Fe Tablets at Mambaus Sholihin Islamic Boarding School, Gresik Regency, East Java

Attitude	Frequency (f)	Percentage (%)
Positive	46	56.80
Negative	35	43.20
Total	81	100.00

According to the above table 3, it is known that 15 respondents (18.5%) represent the attitudes of teenage girls in the negative group, whereas 66 respondents (81.5%) represent the attitudes of adolescents in the positive category.

Table 4 Frequency Distribution Based on Adolescent Compliance Consuming Fe Tablets at Mambaus Sholihin Islamic Boarding School, Gresik Regency, East Java

Pratice	Frequency (f)	Percentage (%)
Compliant	34	42.00
Not Compliant	47	58.00
Total	81	100.00

According to the above table 4, it is known that 34 respondents (42.0%), or teenage girls, complied, while 47 respondents (58.0%) did not.

Bivariate Analysis

Table 5 Relationship between Knowledge and Attitudes Related to Anemia and Fe Tablets in Anemic Adolescent Girls at Mambaus Sholihin Islamic Boarding School

Knowledge	Attitudes				Total		P value
	Positive		Negative		f	%	
	f	%	f	%			
Good	17	77.3	5	22.7	22	100	0,038
Sufficient	15	57.7	11	42.3	26	100	
Less	14	42.4	19	57.6	33	100	
Total	66	81.5	15	18.5	81	100	

According to the above table 5, it is known that 22 respondents (100%) with good knowledge, obtained 17 respondents (77.3%) have a positive attitude and 5 respondents (22.7%) have a negative attitude, there are 26 respondents (100%) with sufficient knowledge, obtained 15 respondents (57.7%) have a positive attitude and 11 respondents (42.3%) have a negative attitude, while 33 respondents (100%) have poor knowledge, obtained 14 respondents (42.4%) have a positive attitude and 19 respondents (57.6%) have a negative attitude.

After bivariate analysis using the chi-square test, a p value of 0.038 was acquired which is less than α 0.05. Consequently, it may be stated that knowledge has a significant relation with the attitude of anemic adolescent girls regarding anemia and Fe tablets at Pondok Pesantres Mambaus Sholihin Gresik Regency.

Table 6 Relationship between Knowledge of Anemic Adolescent Girls and Compliance with Taking Fe Tablets at Mambaus Sholihin Islamic Boarding School

Level of Knowledge	Compliant		Not Compliant		Total		p value
	f	%	f	%	f	%	
Good	16	72.7	6	27.3	22	100	0,002
Sufficient	6	23.1	20	76.9	26	100	
Less	12	36.4	21	63.6	33	100	
Total	34	42.5	47	58.0	81	100	

According to the above table 6, it is known that 22 respondents (100%) with good knowledge, obtained as many as 16 respondents (72.7%) in the compliant category and 6 respondents (27.3%) in the non-compliant category, there were 26 respondents (100%) with sufficient knowledge, obtained as many as 6 respondents (23.1%) in the compliant category and 20 respondents (76.9%) in the non-compliant category, while 33 respondents (100%) with poor knowledge, obtained

as many as 12 respondents (36.4%) in the compliant category and 21 respondents (63.6%) in the non-compliant category.

After conducting a bivariate analysis using the chi-square test, a p value of 0.002 was acquired, which is less than α 0.05. Consequently, it may be stated that knowledge has a significant relationship with the compliance of anemic adolescent girls consuming Fe tablets at Pondok Pesantres Mambaus Sholihin Gresik District.

Table 7 Relationship between Attitudes of Anemic Adolescent Girls and Compliance with Taking Fe Tablets at Mambaus Sholihin Islamic Boarding School

Attitude	Compliant		Not Compliant		Total		p value
	f	%	f	%	f	%	
Positive	32	69.6	14	30.4	46	100	0,000
Negative	2	5.7	33	94.3	35	100	
Total	34	42.0	47	58.0	81	100	

Based on the table above, it is known that 46 respondents (100%) with a positive attitude, obtained as many as 32 respondents (69.6%) in the compliant category and 14 respondents (30.4%) in the non-compliant category, although there are 35 respondents (100%) with a negative attitude, obtained as many as 2 respondents (5.7%) in the compliant category and 33 respondents (94.3%) in the non-compliant category.

After conducting a using the chi-square test in bivariate analysis, a p value of 0.000 was obtained which was less than α 0.05. Consequently, it may be stated that attitude has a significant relationship with the compliance of anemic adolescent girls consuming Fe tablets at Pondok Pesantres Mambaus Sholihin, Gresik Regency.

Discussion

Relationship between Knowledge and Attitude related to Anemia and Fe Tablets

The results showed that most of the santri who had good and sufficient knowledge had a positive attitude towards anemia and Fe tablets. Based on the statistical test results, there is a significant relationship between knowledge and attitude towards anemia. Knowledge is one of the predisposing factors, which is a characteristic of an individual or population that affects behavior before and during



the behavior (Murti, 2018). This study is consistent with other studies (Nasution, IPA & Manik, BSIG 2020), that a good level of knowledge can influence the way respondents behave. Characterized by the results of respondents with a good level of knowledge of adolescents followed by a good attitude as well.

A causal factor in engaging in or refraining from specific acts is one's attitude. Attitudes can be influenced by the impact of other significant individuals, one's personal experience, culture, mass communication, various institutions such as religious and educational institutions, and the impact of affective factors (Murnariswari et al., 2021). Research conducted by (Risva and Rahfiludin, 2016) revealed that respondents with positive attitudes were 2.2 times more likely to take blood supplement tablets than respondents with unfavorable attitudes. In addition, the results of research (Murnariswari et al., 2021) demonstrate the existence of a substantial link between attitude and one's compliance with taking blood tablets (p -value = 0.000), with most of those surveyed possessing a positive attitude (good) obedient in taking blood tablets. The attitude of adolescent girls is a very important domain in increasing compliance in taking Fe tablets.

Relationship between Knowledge and Adherence to Fe Tablet Consumption

Based on the results of the study, most of the respondents' lack of anemia knowledge had a low level of compliance. Statistical test results showed a significant relationship between knowledge and the use of Fe tablets. Perception of an object leads to knowledge acquisition, which is the outcome of knowing. Sight, hearing, smell, taste, and touch are the five senses by which humans perceive their environment (Notoatmodjo, 2012). The greater the degree of education, the more easily information can be absorbed so that anemia and health knowledge will be better. Respondents in this study belong to the group of women of childbearing age, have the same level of education, but information about anemia is different, this can be influenced by other factors such as the formation obtained and the existing media. The intended media are radio television, newspapers, magazines, while the information encountered in everyday life is obtained from observing the outside world around us and passed on through communication.

The findings of this investigation align with previous research Runiari and Hartati's (2020) research which produced data on the most respondents who had

good knowledge, namely (34.2%). Formal education is the main factor that influences a person's knowledge including knowledge about anemia and health. This research is supported by (Runiari and Hartati, 2020) that at the level of poor knowledge, it was found that the level of compliance with taking pills indicated as blood supplements were mostly in the low compliance category, on the other hand, at the level of good knowledge, it was found that most respondents had a moderate compliance category.

Relationship between Attitude and Adherence of Fe Tablet Consumption

Based on the results of the study, the majority of respondents in this study who had a positive attitude also had a high level of compliance in consuming Fe tablets. Statistical test results showed a significant relationship between attitude and adherence to Fe tablet consumption. Notoatmodjo (2012) states that attitude is the willingness or willingness to act rather than the application of certain motives. Even now, attitude is a closed response or response to a stimulant or thing. It can be said that the form of attitude cannot be seen directly, but can be interpreted from behavior that is initially closed. Attitudes clearly show the importance of appropriate responses to certain stimuli, which are sentimental reactions in daily living to stimulation from society. Attitude is a person's closed response or response to a stimulant or thing. Attitude is not yet a deed or action, but a tendency to behave. Even now, attitude is a closed response, not yet an open response or open behavior (Notoatmodjo, 2012).

The findings of this investigation align with previous research (Sari, 2020) which produced data on most respondents who had a positive attitude, namely (85.5%). This research is also supported by (Sari, 2020) which found that there is a relationship between attitude and compliance with Fe tablets consumption. In this study, the average positive attitude of female students (81.5%) behaved well in consuming TTD as much as (48.5%). The tendency to act, attitude is a state of being prepared or eager to act, someone who has a positive attitude has a tendency to do positive behavior as well.

This research is also supported by Azzahra quoted in (Sari, 2020) that most respondents have a good attitude 12 respondents (30%). So there is a relationship with compliance with taking Fe tablets. Knowledge is a major factor in determining



attitude, therefore an individual's attitude regarding the significance of taking Fe pills has been shaped by his knowledge. So someone's good attitude is due to that person who does not want to experience anemia, namely by obediently taking the iron tablets given.

CONCLUSION AND SUGGESTION

Drawing conclusions from the data analysis of the results of this study, it can be said that most of the total hemoglobin levels of adolescent girls at the Mambaus Sholihin Islamic Boarding School in Gresik Regency are <10 gr/dl. There is relationship between knowledge and attitude with the consumption of blood supplement

DECLARATION

Conflict of Interest

Author declare there is no conflict of interest in this research

Authors' Contribution

All author contribute from concept in writing draf article.

Ethical Approval

Research Ethics Committee of Faculty of Medicine, Universitas Airlangga.
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Data Availability

The data supporting this research are available from the authors on reasonable request.

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