Factors Related To Compliance With The Consumption Of Iron Tablets In Adolescent Females

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Abstract

Background *: Anemia is a condition characterized by decreased hemoglobin levels, red blood cell counts, and impaired oxygen requirements. One type of anemia that is often experienced by adolescents is iron deficiency anemia, due to the high iron requirements for adolescent growth which is inversely proportional to the amount of iron intake of adolescents. Many factors cause adolescent girls not to consume or still low consumption of Iron Supplement Tablets in Adolescent Girls. This study aims to determine the factors that influence compliance in taking iron tablets in adolescent girls at SMP Negeri 1 Kotabunan.*

Materials and Methods: *This type of research uses quantitative observational analytic with a cross-sectional approach conducted on 74 female students taken from total sampling. Data collection was obtained from a research instrument in the form of a questionnaire. Data analysis was carried out by univariate analysis carried out on each variable and bivariate using the Charles Spearman Correlation Test or Spearman's Rank Correlation Coefficient with a confidence level (alpha) of 0.05.*

Results: *of the study showed that respondents started menstruating at the age of 11-12 years by 35%, adolescent girls were obedient in consuming iron tablets by 57 people (77%), knowledge of adolescent girls by 67 people (90.5%) with a good category, Teacher Support 82.4%, Family 66.2% and Peers 77% supported adolescent girls consuming iron tablets, the correlation coefficient value with the Spearman's Rank test. for knowledge with compliance in consuming iron tablets 0.000, teacher support 0.003, family support 0.000 and peer support 0.007. There is a relationship between the level of knowledge, teacher support, family support and peer support with compliance in consuming iron tablets with a correlation coefficient value (sig.2-tailed) <0.05.*

Conclusion: *Adolescents in the growth and development period require adequate nutrient intake including the consumption of iron tablets to avoid anaemia. This study shows that factors associated with adherence to iron tablet consumption in adolescent girls are knowledge, attitude, parental support and teacher support.*

Keywords: *Compliance, Adolescent Girls, Iron Tablets*

I. Introduction

Adolescence is a stage where a person experiences a transition period towards adulthood. Adolescence is a stage of age that comes after childhood ends, marked by rapid physical growth. Rapid adolescent growth is related to the fulfillment of nutrition or consumption of adolescents in consuming food substances, one of which is iron consumption. Adolescence begins when children show signs of puberty and continues with changes from non-asexual to sexual(Wahyuningsih & Uswatun, 2019).

Adolescent girls who suffer from anemiacan cause easy fatigue, decreased concentration in learning so that learning achievement is low and can reduce work productivity. In addition, it also reduces the body's resistance so that it is easily infected(Kusumawati & Romdhoni, 2015). Anemia can also affect the level of physical fitness of a young woman. In addition, young women who experience anemia also have a risk of experiencing anemia when they become pregnant, so various efforts need to be made to prevent and treat anemia in young women.

The condition of adolescent girls who experience anemia will continue to become pregnant women who also experience anemia so that it can affect the first 1000 days of life (HPK) of the fetus they are carrying. The impacts that arise include the risk of giving birth to low birth weight babies (LBW) which are 3.63 times at risk of becoming stunted babies under two years of age (baduta).

The Acceleration of Nutrition Improvement Movement to break the chain of stunting is prioritized in 1000 HPK through specific and sensitive interventions which, among other things, are integrated with anemia control programs targeting adolescent girls and women of childbearing age (WUS) ((Ministry of Health of the Republic of Indonesia, 2021)

Non-compliance in taking iron tablets inhibits the benefits of iron (Fe) supplementation.(Yuniarti et al., 2015). Non-compliance among young women in consuming iron tablets can be caused by feelings of boredom or laziness, the unpleasant taste and aroma of iron tablets (Aditianti et al., 2015), side effects felt after consuming iron tablets, such as nausea and vomiting, pain or burning in the pit of the stomach and black stools ((Ministry of Health of the Republic of Indonesia, 2021);(Yuniarti et al., 2015)

Compliance in consumingIron Tablets is a form of behavior so that the tendency of adolescent girls to comply with consumingIron Tablets regularly can be analyzed using behavioral theory. One of the behavioral theories that can be used is the Theory of Planned Behavior (TPB). Compliant behavior is the result of the intention of adolescent girls to consumeIron Tablets with a frequency of one tablet every week throughout the year. TPB or the theory of planned behavior states that the dimensions that influence the formation of individual intentions are attitudes, subjective norms, and perceptions of behavioral control.(Ramdhani, 2016).

The factor that most influences the level of compliance of adolescents in schools is the motivation of teachers in providing awareness in consumingIron Tablets regularly so that hemoglobin levels can be maintained in the normal category.(Nuradhiani et al., 2017). Therefore, there needs to be an effort to increase compliance in consuming Iron Tablets through nutritional counseling to improve knowledge, attitudes, and behavior of adolescents. Good knowledge will shape good behavior too, so that to get maximum knowledge results from delivering materials can be done with various methods and media.

Anemia has a major impact on health, especially in pregnant women, pregnant women with anemia will cause bleeding in pregnant women, premature babies, LBW (Low Birth Weight), heart, kidney, and brain disorders and can even cause mothers to die during childbirth. While anemia in adolescents can inhibit psychomotor development, damage cognitive performance, and scholastic performance(Aulakh, 2016). Therefore, this anemia problem must be prevented and overcome when they are still teenagers because teenagers will become pregnant women later.(Mulugeta et al., 2015).

The incidence of anemia due to iron deficiency (Iron Nutritional Anemia) in Indonesia is one of the nutritional problems that has not been resolved, both in pregnant women and in adolescents. Based on Riskesdas data in 2018, there was an increase in anemia in pregnant women by 11.8% compared to 2013. As many as 37.1% of pregnant women suffered from anemia in 2013 and in 2018 it was 48.9%2. This is due to the high prevalence of anemia in adolescent girls, which is 25% and 17% in WUS (Ministry of Health of the Republic of Indonesia, 2018).

Consumption of iron supplement tablets by female adolescents in East Bolaang Mongondow, especially in the working area of UPTD Buyat Health Center, has a low consumption rate, namely in 2023 based on the Results of the Routine Report of UPTD Buyat Health Center Quarter II, the achievement of the level of iron supplement tablet consumption at SMP Negeri 1 Kotabunan from 75 female students, 25 female students only consumed 6 iron supplement tablets ($\leq 50\%$), 35 female students consumed 7-9 iron supplement tablets (51-80%) and only 15 female students consumed 12 iron supplement tablets ($\geq 80\%$). Many factors cause female adolescents not to consume or the low consumption of iron supplement tablets in female adolescents. The purpose of this study was to determine the factors related to compliance with iron supplement tablet consumption in female adolescents at SMPN I Kotabunan.

II. Research Methods

This type of research uses quantitative observational analytic with a cross-sectional approach. Observational analytical research is a study directed to find out and investigate data from samples taken from the population, so that there is a correlation between variables. While the cross-sectional approach is a study where the variables including the effects are observed simultaneously at the same time. This study examines the relationship between one variable and another. This study uses a full sample or total sampling. The data in the study consists of Primary data obtained directly from respondents using questionnaires and Secondary data obtained from school profiles.

The course of the research begins with a review of the location where the research will be conducted by comparing the incidence rate of a higher problem, then conducting a survey of population data and samples to be studied and determining the sample. The samples that have been determined are given a questionnaire sheet to be filled in, then editing, coding, and cleaning are carried out and continue to the data entry and tabulation process. Data analysis is carried out using univariate and bivariate statistical analysis using statistical software. Univariate analysis is carried out on each variable studied which is presented in the form of frequency and percentage, whileBivariate analysis in this study was conducted using the Charles Spearman Correlation Test or Spearman's Rank Correlation Coefficient, namely a statistical test to test 2 variables with ordinal data or one variable with ordinal data and the other nominal or ratio, using the established criteria, namely by comparing the calculated ρ value with the table ρ.

III. Results And Discussion

Respondent Characteristics

Table 1. Characteristics of Female Adolescent Respondents

Characteristics	n	%
Age		
11 – 12 years	35	47.3
13 – 14 years	33	44.6
15 – 16 years	6	8.1
Total	74	100
Menstrual Age		
11 – 12 years	68	91.9
13 – 14 years	6	8.1
Total	74	100

Based table 1 on the research results from 74 respondents, the most dominant age for female adolescents was 11-12 years old, with 35 respondents (47.3%), while the age of first menstruation was highest at 11-12 years old, with 68 respondents (91.1%).

Compliance with Consumption of Iron Tablets

Table 2. Respondents' Compliance in Consuming Iron Tablets

Compliance	n	%
Obedient	57	77.0
Not obey	17	23.0
Amount	74	100.0

Based table 2 on the research results from 74 respondents, 57 respondents (77%) were compliant in consuming iron tablets

Knowledge of Adolescent Anemia

Table 3. Respondents' Knowledge Level About Anemia

Knowledge	n	%
Not enough	7	9.5
Good	67	90.5
Amount	74	100.0

Based table 3 on the table above, the highest level of knowledge of respondents was at a good level of knowledge, namely 67 people (90.5%).

Teacher, Family, and Peer Support

Table 4. Distribution of Respondents' Support from Teachers, Family, and Peers

No	Criteria	Support		Does not support		Amount	
		n	%	n	%	n	%
1	Teacher Support	61	82.4	13	17.6	74	100
2	Family Support	49	66.2	25	33.8	74	100
3	Peer Support	57	77	17	23	74	100

Based table 4 on the table above, teacher support for students in consuming iron tablets was supported by 61 people (82.4%), family support was 49 families (66.2%) and peer support was 57 people (77%).

Statistical Analysis Results

Table 5. Distribution of Statistical Test Results of Factors with Level of Compliance in Consuming Iron Tablets

Variable	Obedient		Not obey		p*
	n	%	n	%	
Knowledge					
Good	51	69	16	22	0.000
Not enough	6	8	1	1	
Teacher Support					
Support	47	64	14	19	0.003
Does not support	10	14	3	4	
Family Support					
Support	39	53	10	14	0.000
Does not support	18	24	7	9	
Peer Support					
Support	45	61	12	16	0.007

Does not support	12	16	5	7	

*Spearman Correlation Test is significant at p < 0.05

Relationship Between Knowledge Factors About Anemia and Consumption of Iron Tablets
Table 6. Correlation Results with Spearman Rank of Knowledge with Compliance in Taking Iron Tablets

			Knowledge	Consumption Compliance Iron Tablets
Spearman's rho	Knowledge	Correlation Coefficient	1,000	.416**
		Sig. (2-tailed)	.	.000
		n	74	74
	Consumption Compliance Iron Tablets	Correlation Coefficient	.416**	1,000
		Sig. (2-tailed)	.000	.
		n	74	74
**. Correlation is significant at the 0.01 level (2-tailed).				

Based table 6 on the output above, it is known that n or the number of research data is 74. Seen from the table of correlation test results with the Spearman Rank technique, the correlation coefficient value (sig.2-tailed) is 0.000 with a confidence interval (alpha) of 0.05 for a 2-sided test. It is concluded that *Ho* rejected and *H₁* accepted, so there is a significant relationship between Knowledge About Anemia and compliance with taking iron tablets. The correlation coefficient figure in the results above shows 0.416 and is positive, so the relationship between the variables is unidirectional. This study is in line with research conducted by (Simanungkalit & Simarmata, 2019)that there is a relationship between knowledge and the incidence of anemia in adolescent girls and in the multivariate test it was found that knowledge of anemia is the dominant factor in anemia in adolescent girls. Knowledge is the basis of behavior to comply with the recommendation to consume iron tablets which are a blood-boosting supplement that is very much needed by adolescents to prevent anemia during pregnancy (Andina Vita Sutanto, 2018).

The Relationship Between Teacher Support Factors and Consumption of Iron t Tablets
Table 7. Correlation Results with Spearman Rank of Teacher Support and Compliance in Taking Iron Tablets

			Teacher Support	Consumption Compliance Iron Tablets
Spearman's rho	Support Teacher	Correlation Coefficient	1,000	.346**
		Sig. (2-tailed)	.	.003
		n	74	74
	Consumption Compliance Iron Tablets	Correlation Coefficient	.346**	1,000
		Sig. (2-tailed)	.003	.
		n	74	74
**. Correlation is significant at the 0.01 level (2-tailed).				

Based table 7 on the output above, it is known that n or the number of research data is 74. Seen from the table of correlation test results with the Spearman Rank technique, the correlation coefficient value (sig.2-tailed) is 0.003 with a confidence interval (alpha) of 0.05 for the 2-sided test. It is concluded that *Ho* rejected and *H1* is accepted, so there is a significant relationship between teacher support and compliance in taking iron tablets. The correlation coefficient figure in the results above shows 0.346 and is positive, so the relationship between the variables is unidirectional and in line with previous studies which state that there is a significant relationship between teacher support and adolescent compliance in consuming iron tablets which is marked by a p-value of 0.000 (Nuradhiani et al., 2017). Teacher support is positively correlated with the level of compliance of adolescent girls in taking blood supplement tablets distributed in the working area of the Pasar-Ming District Health Center. Teachers act as role models in schools and can have a major influence on student behavior. Therefore, teachers strongly support adolescent compliance with Iron Tablets. In addition, adolescent girls spend 4,444 hours more each day at school than at home. With the help of 4,444 teachers, adolescent girls can take blood supplement tablets regularly at school and are supervised and supported(Pou et al., 2024).

Relationship Between Family Support Factors and Consumption of Iron Tablets
Based table 8 on the output above, it is known that n or the number of research data is 74. Seen from the table of correlation test results with the Spearman Rank technique, the correlation coefficient value (sig.2-tailed) is 0.000 with a confidence interval (alpha) of 0.05 for a 2-sided test. It is concluded that *Ho* rejected and *H1* is

accepted, so there is a significant relationship between teacher support and compliance in taking iron tablets. The correlation coefficient figure in the results above shows 0.408 and is positive, so the relationship between the variables is unidirectional. This study is in line with that conducted by(Prayudhistya et al., 2023)that there is a significant correlation (p value <0.05) in family support with compliance in consuming iron tablets at SMAIT Ukhuwah Banjarmasin. The high level of support given by the family can form a normative belief and young women tend to form a positive perception of consuming iron tablets, so that a strong intention is formed to consume iron tablets to avoid the risk of anemia.(Savitry et al., 2017).

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Table 8. Correlation Results with Spearman Rank Support Family and Compliance with Taking Blood Tablets				
			Family Support	Iron Tablets Consumption Compliance
Spearman's rho	Family Support	Correlation Coefficient	1,000	.408**
		Sig. (2-tailed)	.	.000
		n	74	74
	Iron Tablets Consumption Compliance	Correlation Coefficient	.408**	1,000
		Sig. (2-tailed)	.000	.
		n	74	74
**. Correlation is significant at the 0.01 level (2-tailed).				

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The Relationship Between Peer Support Factors and Consumption of Iron Tablets

Table 9. Correlation Results with Spearman Rank Peer Support and Compliance in Taking Iron Tablets				
			Peer Support	Iron Tablets Consumption Compliance
Spearman's rho	Peer Support	Correlation Coefficient	1,000	.309**
		Sig. (2-tailed)	.	.007
		N	74	74
	Consumption Compliance Signed	Correlation Coefficient	.309**	1,000
		Sig. (2-tailed)	.007	.
		N	74	74
**. Correlation is significant at the 0.01 level (2-tailed).				

Based table 9 on the results of the analysis above, it is known that the results of the correlation test using Spearman Rank, obtained a correlation coefficient value (sig.2-tailed) of 0.007 with a confidence interval (alpha) of 0.05 for a 2-sided test. It is concluded thatHorejected and$H1$ is accepted, so there is a significant relationship between teacher support and compliance in taking iron tablets. The correlation coefficient figure in the results above shows 0.309 or is positive, so the relationship between the variables is unidirectional. This study is in line with research conducted by(Ilham et al., 2023)that there is a relationship between peer support and consumption of iron tablets in female adolescents at SMP Negeri 1 Mamuju. Support is an effort of encouragement given to someone in the form of morale or material to provide motivation and encouragement to others in doing something in accordance with the expected goals.(Puspikawati et al., 2021). Peers are an external factor that can support individuals to generate motivation to achieve a goal, this also plays an important role in the emergence of motivation given to young women to consume iron tablets.(Ulfah & Ariati, 2017);(Amanda & Darmadja, 2020).

IV.   Conclusion

Adolescents in their growth and development period need adequate nutritional intake including consumption of Iron tablets to avoid anemia. This study shows that factors related to compliance with iron tablet consumption in adolescent girls are knowledge, attitude, parental support and teacher support.

It is hoped that the role of schools, parents and health centers will continue to provide support for regular iron consumption in adolescent girls so that healthy and quality adolescent girls will be realized.

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