

# Factors Related to The Incidence of Anemia in Young Girls at SMPN 4 Babelan, Bekasi

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## Abstract

**Background:** Anemia is a condition that often occurs in young women because they are still growing and entering puberty. Young women also experience menstruation every month which during this period they will be at risk of anemia. Other factors that can affect adolescent anemia are knowledge, diet, economic status, and consumption of iron supplement (Fe) tablets.

**Purpose:** To determine the relationship between knowledge, menstrual patterns, economic status, diet, and adherence to consumption of Fe tablets with the incidence of anemia in young women at SMPN 4 Babelan, Bekasi Regency.

**Methods:** This research uses descriptive analytic with cross sectional approach. The sample in the study amounted to 95 young women who had experienced menstruation with the non-probability sampling technique of taking samples in total sampling. The research instrument used a Hb check tool and a questionnaire.

**Results:** The results of the study were tested by statistical tests using the chi-square test. Based on the results of statistical tests using chi square, it showed that factors related to the incidence of anemia were menstrual patterns ( $p=0.002$ ), and factors that were not related to the incidence of anemia were knowledge ( $p=0.305$ ), economic status ( $p=0.361$ ), eating patterns ( $p=0.186$ ), and consumption of Fe tablets ( $p=0.884$ ).

**Conclusion:** There was a significant relationship between menstrual patterns and the incidence of anemia in young women.

**Keywords:** Adolescent Girl, Anemia, Menstrual Patterns

## Introduction

The incidence of anemia in Indonesia is still relatively high, anemia is the most common nutritional problem in both developed and developing countries, and in people with low and high socio-economic status. Anemia can occur in anyone and in any age group. Especially in the group of young women (10-19 years) who suffer from anemia, as much as 20-30% experience decreased physical abilities (productivity) and academic abilities. Young women have a ten times greater risk of suffering from anemia compared to

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young men. This is because young women experience menstruation every month and are in a period of growth, so they need more iron intake.<sup>1</sup>

Basically, anemia is directly affected by consumption of daily foods that lack iron, in addition to infection as a trigger. In general, food consumption is closely related to nutritional status. If the food consumed has good nutritional value, then the nutritional status is also good, conversely if the food consumed has less nutritional value, it will cause malnutrition and can cause anemia.<sup>2</sup>

Nutritional anemia mainly caused by iron deficiency is the most common nutritional disorder in developing countries. Iron deficiency anemia is prone to occur in young women because of the increased need for iron during the growth period, this is due to the large amount of iron lost during menstruation. In addition, it is exacerbated by a lack of iron intake, where iron in young women is needed by the body to accelerate growth and development.<sup>3</sup>

Anemia in young women can cause decreased academic achievement, decreased body resistance so that they are susceptible to infectious diseases, decreased fitness levels resulting in decreased productivity and sports achievements, also not achieving maximum height because during this period there is a peak in height growth. Factors that affect anemia in female adolescents include a lack of knowledge, attitudes and skills of adolescents due to a lack of delivery of information, lack of concern for parents, society and government for adolescent health and not yet optimal health services.<sup>4</sup>

According to the World Health Organization (WHO) 2018, anemia in young girls around the world is still quite high, the world prevalence of anemia ranges from 40-88% and the incidence of anemia in young women in developing countries is around 53.7 %, and in young women in Indonesia by 23% of all young women. Anemia often attacks young women due to stress, experiencing menstruation every month, inadequate diet, and disobedience in consuming Fe tablets.

Based on the 2018 Basic Health Research (Riskesdas) data, in Indonesia iron deficiency anemia is still a public health problem, especially with the prevalence of anemia in adolescents (10-19) of 32%, meaning that 3-4 out of 10 adolescents suffer from anemia. Indonesian adolescents with anemia are faced with decreased immunity, concentration, academic achievement, adolescent fitness and productivity. Especially for young women

who will later become mothers, anemia can also trigger pregnancy complications, such as premature birth, or babies born with low body weight and the risk of death due to bleeding during childbirth.<sup>5</sup>

The results of the data obtained from West Java Provincial Health Office, 2018 the number of female adolescents who have experienced anemia in the last 2 years has increased. Data for 2018 the number of adolescents who experienced anemia was 39.2% and increased in 2019 to 41.5%. The head of the health office stated that the coverage of young women who received appropriate blood-supplement tablets in West Java in 2021 was only 25.2% and was still below West Java's target of 52%. The head of the health office hopes that young women can continuously change their behavior to routinely take iron tablets to meet iron adequacy of young women, so that the hemoglobin level of young women remains normal and not anemic.

The results of a preliminary study conducted at SMP Negeri 4 Babelan, Bekasi Regency, based on teacher information obtained data in class IX which totaled 120 students, every month there are always students who do not go to school due to illness, every day there are students who are taken to the School Health Unit (UKS), there were even female students who fainted during the ceremony. The results of interviews with their class IX students said that their vision was often dizzy, they often felt tired quickly, and lethargic. Moreover, they often skip breakfast so that their nutritional intake is not fulfilled properly when doing activities.

## **Method**

### *1. Research design*

This research is quantitative research with a descriptive analytic research design using a cross sectional method.

### *2. Setting and samples*

This research was conducted at a school, namely SMP Negeri 4 Babelan, Bekasi Regency in December-January 2023. The sample in the study was 95 female adolescents who had experienced menstruation using the non-probability sampling technique. Total sampling was in accordance with predetermined inclusion criteria.

### 3. Measurement and data collection

Data collection was carried out using the Easy Touch brand Hb checking tool to determine hemoglobin levels and using a questionnaire to measure variables.

### 4. Data analysis

The research results were then tested and analyzed using the chi-square test.

## Results

**Table 1.**  
**Frequency Distribution of Respondents Based on The Incidence of Anemia in Young Girls**

Anemia Incidence	Frequency	Percentage (%)
Anemia	44	46.3
Not Anemia	51	53.7
Total	95	100

Based on table 1 above, it shows the results of the distribution of the frequency of occurrence of anemia in young girls at SMPN 4 Babelan, Bekasi Regency, out of 95 respondents whose hemoglobin levels were examined, 44 (46.3%) respondents had anemia, while most of them had 51 (53.7%) respondents did not experience anemia.

**Table 2.**  
**Frequency Distribution of Respondents Based on Knowledge of Young Women**

Knowledge	Frequency	Percentage (%)
Not enough	40	42,1
Good	55	57,9
Total	95	100

Based on table 2, it shows the results of the distribution of the frequency of knowledge of young women at SMPN 4 Babelan, Bekasi Regency, that out of 95 respondents, 40 (42.1%) had less knowledge, while most of them had 55 (57.9%) respondents who had good knowledge about anemia in adolescent.

**Table 3.**  
**Frequency Distribution of Respondents Based on Menstrual Patterns for Young Women**

Menstrual Pattern	Frequency	Percentage (%)
Abnormal	30	31,6
Normal	65	68,4
Total	95	100

Based on table 3, it shows the results of the distribution of the frequency of menstrual patterns for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, 30 (31.6%) teenagers had abnormal menstrual patterns and 65 (68.4%) respondents had normal menstrual patterns.

**Table 4.**  
**Frequency Distribution of Respondents Based on the Economic Status of Young Women**

Economic Status	Frequency	Percentage (%)
Low	47	49.5
Tall	48	50.5
Total	95	100

Based on table 3, the results of the frequency distribution of the economic status of young women at SMPN 4 Babelan Bekasi show that out of 95 respondents, more than half (50.5%) of the respondents' parents had an income above the UMK of Bekasi Regency.

**Table 5.**  
**Frequency Distribution of Respondents Based on Diet of Young Women**

Dietary habit	Frequency	Percentage (%)
Insufficient	47	49.5
Sufficient	48	50.5
Total	95	100

Based on table 5, it shows the results of the distribution of the frequency of eating patterns of young women at SMPN 4 Babelan Bekasi that out of 95 respondents, almost half (49.5%) of adolescents have an inadequate diet, and as many as 48 (50.5%) of adolescents have an adequate diet. sufficient for daily nutritional needs.

**Table 6.**  
**Frequency Distribution of Respondents Based on Consumption of Fe Tablets by Female Teenagers**

Consumption of Fe Tablets	Frequency	Percentage (%)
Not obey	55	57,9
obey	40	42,1
Total	95	100

Based on table 6, it shows the results of the frequency distribution of consumption of Fe tablets for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, there

were 55 (57.9%) teenagers who did not regularly consume Fe tablets and as many as 40 (42.1%) teenagers regularly consumed Fe tablets given by health workers.

**Table 7.**  
**Relationship between knowledge and the incidence of anemia in young women**

Knowledge	Adolescent Anemia Incidence						P-Value
	Anemia		Not Anemia		Total		
	f	%	F	%	f	%	
Less Knowledge	21	44,4	19	55,6	40	100	0.305
Good Knowledge	23	46,2	32	53,8	55	100	
Total	44	45,3	51	54,7	95	100	

Based on table 7, it shows that of the 40 adolescents who have less knowledge, 21 (44.4%) have anemia, while 32 (53.8%) adolescents with good knowledge do not have anemia. From the bivariate analysis with statistical tests using the chi square test, it was obtained a p- value of  $0.305 > 0.05$ , so it can be concluded that there is no significant relationship between knowledge and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

**Table 8.**  
**The Relationship between Menstrual Patterns and the Incidence of Anemia in Young Women**

Menstrual Pattern	Adolescent Anemia Incidence						P-Value
	Anemia		Not Anemia		Total		
	F	%	F	%	F	%	
Abnormal	21	70.0	9	30.0	30	100	0.002
Normal	23	35,4	42	64,6	65	100	
Total	44	46,3	51	53,7	95	100	

Based on table 8, it shows that of the 30 respondents, the most common occurrence of anemia occurs in adolescents who have abnormal menstrual patterns with a percentage of (70.0%) and based on the analysis of the relationship between menstrual patterns and the incidence of anemia using the chi square test, a p-value of 0.002 is obtained.  $< 0.05$ ,

which means that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

**Table 9.**  
**Relationship between Economic Status and Anemia Incidence in Young Women**

Economic Status	Adolescent Anemia Incidence						<i>P-Value</i>
	Anemia		Not Anemia		Total		
	F	%	F	%	F	%	
Low	24	51,1	23	48,9	47	100	0.361
Tall	20	41.7	28	58,3	48	100	
Total	44	46,3	51	53,7	95	100	

Table 9 shows that out of 47 respondents, 24 (51.1%) teenagers who had low economic status experienced anemia, while 28 (58.1%) of 48 respondents with high economic status did not experience anemia. From the bivariate analysis using the chi square test, it was found that the p-value was  $0.361 > 0.05$ . It can be concluded that there is no significant relationship between economic status and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

**Table 10.**  
**Relationship between diet and the incidence of anemia in young women**

Dietary habit	Adolescent Anemia Incidence						<i>P-Value</i>
	Anemia		Not Anemia		Total		
	f	%	F	%	F	%	
Insufficient	25	53,2	22	46,8	47	100	0.186
Sufficient	19	39,6	29	60,4	48	100	
Total	44	46,3	51	53,7	95	100	

Based on table 10, it shows that of the 47 respondents, adolescents with an inadequate diet, 25 (53.2%) experienced anemia, while of the 48 respondents, adolescents with an adequate diet, 29 (60.4%) did not experience anemia. From the bivariate analysis using the chi square test, it was found that the p-value was  $0.186 > 0.05$ . It can be concluded that there is no significant relationship between diet and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

**Table 11.**  
**Consumption of Fe Tablets with Anemia Incidence in Young Women**

Consumption of Fe Tablets	Adolescent Anemia Incidence						P-Value
	Anemia		Not Anemia		Total		
	F	%	F	%	F	%	
Not obey	25	45.5	30	54.5	55	100	0.844
obey	19	47.5	21	52.5	40	100	
Total	44	46,3	51	53,7	95	100	

Based on table 11, it shows that of the 55 respondents, adolescents who were not compliant with consuming Fe tablets, 25 (45.5%) experienced anemia, while of the 40 respondents, adolescents who adhered to consuming Fe tablets, 21 (52.5%) did not experience the event. anemia. From the bivariate analysis using the chi square test, it was found that the p-value was  $0.884 > 0.05$ . It can be concluded that there is no significant relationship between consumption of Fe tablets and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

## Discussion

### 1. Frequency Distribution of Respondents Based on Knowledge of Young Women

Based on univariate analysis, table 4.2 shows the results of the frequency distribution of knowledge of young girls at SMPN 4 Babelan, Bekasi Regency, that out of 95 respondents, 40 (42.1%) had less knowledge, while most of them had 55 (57.9%) respondents who had good knowledge. about adolescent anemia.

Knowledge is a sense of knowing as a result of sensing involving the five senses, namely sight, hearing, smell, taste and touch of an object. Knowledge about anemia includes an overview of young women's understanding of anemia, risk factors or causes of anemia, the process of its occurrence, signs and symptoms of anemia and prevention and prevention of anemia. This knowledge can reflect as a form of prevention against anemia in life.

In line with research conducted by Rahayu which stated that there is a relationship between the level of knowledge and the incidence of anemia in young women. Adolescent girls who have good knowledge about anemia will tend to have sufficient food consumption to meet nutritional needs to avoid anemia problems.<sup>4</sup>

According to the researchers, knowledge is one of the factors that can affect anemia in young women, because good knowledge will influence adolescents in choosing, evaluating and deciding something good for themselves so as to avoid the occurrence of anemia such as finding as many sources of information as possible regarding adolescent anemia, choosing food consumed every day to meet daily nutritional needs, and so on. Meanwhile, the lack of knowledge causes them to be unable to distinguish between what is good and what is bad for their health.

## **2. Frequency Distribution of Respondents Based on Menstrual Patterns for Young Women**

Based on table 2, it shows the results of the frequency distribution of menstrual patterns for young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, 30 (31.6%) teenagers had abnormal menstrual patterns and 65 (68.4%) respondents had normal menstrual patterns.

The menstrual pattern is a series of menstrual processes which include the menstrual cycle, length of menstrual bleeding and dysmenorrhea. The menstrual cycle is the time from the first day of menstruation until the arrival of the next menstrual period.<sup>16</sup>

In line with research conducted by Kulsum stated that abnormal menstrual patterns would cause respondents to lose more blood during menstruation than respondents who had normal menstrual patterns. The pattern and length of the menstrual process will affect the number of red blood cells in the body, the longer the menstrual process, the more blood will come out, which can cause anemia problems in young women.<sup>16</sup>

According to researchers, at the age of puberty, the menstrual patterns experienced by female adolescents are generally irregular, thus allowing adolescents to experience excessive bleeding during menstruation. The factors that influence menstrual patterns include hormones, body weight, physical activity, stress and nutritional status. One of these factors can cause abnormal menstrual patterns for young women. Therefore, it is important for young women to know the factors that cause abnormal menstrual patterns resulting in anemia.

## **3. Frequency Distribution of Respondents Based on Young Women's Economic Status**

The results of the frequency distribution of the economic status of young women at SMPN 4 Babelan Bekasi show that out of 95 respondents, more than half (50.5%) of the

respondents' parents had an income above the UMK of Bekasi Regency. According to Abdul Basith et al., (2017) The low economic level (income) of the family will affect the pattern and type of food for the family, where most families who have a low economic level (income) prefer types of carbohydrate-oriented foods rather than protein, vitamins and minerals.<sup>7</sup>

This is because foods that contain carbohydrates are cheaper than others. According to the researchers, economic status is the income of the parents of young women who have a percentage of fulfilling daily needs in the family, for example, is the income of the parents of teenagers sufficient for primary and secondary needs, one of which is the purchasing power of the family in fulfilling the nutritional status of the teenager himself. From the data obtained above, more than half of young women have parents with incomes above the UMK of Bekasi Regency, which means that the fulfillment of nutrition and adolescent diets is likely to be fulfilled.<sup>7</sup>

#### **4. Frequency Distribution of Respondents Based on Diet of Young Women**

The results showed that the frequency distribution of the eating patterns of young girls at SMPN 4 Babelan Bekasi that out of 95 respondents, almost half (49.5%) of the teenagers had inadequate eating patterns, and as many as 48 (50.5%) of the teenagers had an inadequate eating pattern. sufficient for daily nutritional needs.

Diet is human behavior in meeting their food needs which includes attitudes, beliefs and food selection. Food is a necessity for living things, food consumed by various types with various types of processing. Eating patterns are influenced by eating habits, namely the way a person eats food three times a day with the frequency and type of food eaten. A nutritious and balanced diet is a diet that pays attention to the composition of the types of food, regular, not excessive, nor lacking.

In line with research by Utami, a good diet needs to be formed as an effort to meet nutritional needs. An inappropriate diet will lead to excess nutrient intake or vice versa. Excess intake can lead to excess weight and other diseases caused by excess nutrients. Conversely, eating less than needed will cause the body to become thin and susceptible to disease. According to researchers, a good diet in adolescents is the eating habits of the adolescents themselves, whether regularly 3 times a day and the portion of food consumed is sufficient for balanced daily nutrition. A bad diet will not meet the daily needs of teenagers

and cause the body to be unable to carry out activities properly, even causing teenagers to lose concentration while studying.<sup>33</sup>

### **5. Frequency Distribution of Respondents Based on Consumption of Fe Tablets by Female Teenagers**

Based on table 4.6, it shows the results of the frequency distribution of consumption of Fe tablets for young girls at SMPN 4 Babelan Bekasi, that out of 95 respondents, there were 55 (57.9%) teenagers who did not regularly consume Fe tablets and as many as 40 (42.1%) teenagers regularly consumed Fe tablets. given by health workers.

Iron (Fe) tablets are additional iron supplements that contain micronutrients needed by the body, especially for young women who have iron deficiency anemia. An iron anemia can be prevented by consuming iron (Fe) tablets regularly.<sup>26</sup>

In line with research in 2017, states compliance is a change regarding previous behavior from behavior that does not comply with regulations. The problem regarding adherence is a matter of daily iron supplementation, which results in safeguards related to adherence in consuming Fe tablets in the presence of health workers directly.<sup>13</sup>

According to researchers, consumption of Fe tablets is needed by young women at least once every 2 weeks, especially during menstruation. Where during menstruation additional iron is very important to prevent anemia deficiency in young women. There are several factors that can affect the consumption of Fe tablets, including the knowledge and attitude of the adolescents themselves in obedience and encouragement to consume Fe tablets.

### **6. Relationship of Knowledge with Anemia Incidence in Young Women**

Based on the results of this study, it was found that out of 40 young women who had less knowledge (44.4%) experienced anemia, and most of the teenagers who had high knowledge (53.8%) did not experience anemia. From the bivariate analysis using the chi square test, it was obtained a p-value of  $0.305 > 0.05$ , so it can be concluded that there is no significant relationship between knowledge and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan, Bekasi Regency.

Knowledge is a sense of knowing as a result of sensing including the five senses, namely sight, hearing, smell, taste and touch of an object. Through education, self-experience and others, the mass media and the environment are sources of knowledge. Knowledge about anemia includes an overview of young women's understanding of anemia,

risk factors or causes of anemia, the process of its occurrence, signs and symptoms of anemia and prevention and prevention of anemia. This knowledge can reflect as a form of prevention against anemia in life.

The results of this study are in contrast to research conducted by Rahayu et al. which states that there is a relationship between the level of knowledge and the incidence of anemia in young women. Adolescent girls who have good knowledge about anemia will tend to have sufficient food consumption to meet nutritional needs to avoid anemia problems. Adolescent girls are also one of the populations that have a higher risk of developing anemia than boys. This happens because young women experience menstruation and have a desire to stay slim so dieting reduces food which has an impact on fulfilling poor nutrition.<sup>4</sup>

## **7. The Relationship between Menstrual Patterns and the Incidence of Anemia in Young Women**

Based on the results of this study, it was found that of the 65 female adolescents who had an abnormal menstrual pattern (70.0%) experienced anemia, and female adolescents who had a normal menstrual pattern (64.6%) did not experience anemia. From the bivariate analysis using the chi square test, it was obtained a p-value of  $0.002 < 0.05$ , so it can be concluded that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX teenage girls at SMPN 4 Babelan, Bekasi Regency.

The menstrual pattern is a series of menstrual processes which include the menstrual cycle, the duration of menstrual bleeding and dysmenorrhea. The menstrual cycle is the time from the first day of menstruation until the arrival of the next menstrual period.<sup>16</sup>

This research is in line with research conducted by Kulsum which states that there is a relationship between menstrual patterns and the occurrence of anemia in young women with a p-value of  $0.001 < 0.05$ . Abnormal menstrual patterns will cause respondents to lose more blood during menstruation than respondents who have normal menstrual patterns. The pattern and length of the menstrual process will affect the number of red blood cells in the body, the longer the menstrual process, the more blood will come out, which can cause anemia problems in young women.<sup>16</sup>

According to researchers, at the age of puberty, the menstrual patterns experienced by young women are generally irregular, thus allowing adolescents to experience excessive bleeding during menstruation. Therefore, young women need iron which is used to replace iron lost with menstrual blood. Because bleeding during menstruation is accompanied by iron that comes out with the blood, women are advised to consume iron either from foodstuffs or available iron (Fe) tablets to maintain balance and prevent anemia. Likewise for adolescents who have normal menstrual patterns but they suffer from anemia.

### **8. Relationship between Economic Status and Anemia Incidence in Young Women**

Based on the results of this study, it was found that out of 48 young women whose parents had high economic status, 28 (58.3%) did not experience anemia. From the bivariate analysis, it shows that young women whose parents have high economic status do not experience anemia, obtained a p-value of  $0.361 > 0.05$ . It can be concluded that there is no significant relationship between economic status and the incidence of anemia in class IX young women at SMPN 4 Babelan, Bekasi Regency.

Economic status is the high or low percentage that a person has based on the position he holds in a society based on work, monthly income to meet his needs. Economic status can be seen from the income adjusted for daily basic needs. The low economic level (income) of the family will affect the pattern and type of food for the family, where most families who have a low economic level (income) prefer carbohydrate-oriented foods compared to protein, vitamins and minerals. This is because foods that contain carbohydrates are cheaper than others.<sup>7</sup>

The results of the study are in line with the research of Ayudia, which states that there is no relationship between economic status and the incidence of anemia in young women with a p-value of  $0.731 > 0.05$ . Respondents whose parents' income is low and suffer from anemia because the respondents do not pay much attention to the nutritional content they consume every day.<sup>24</sup> From the interview results, respondents said they consumed more cheap and delicious snacks, but they did not pay attention to the quality of the food. Respondents are more concerned with quantity than the quality of nutrition consumed every day.<sup>30</sup>

This research is in contrast to research conducted by Basith et al., regarding factors related to the incidence of anemia in young girls at SMPN 4 that the most common occurrence of anemia is adolescents who have parents with low income levels. with a p-

value of  $0.000 < 0.05$  so it can be concluded that there is a relationship between parents' income levels and the incidence of anemia. Parents' economy is not a direct factor that can cause anemia, but parents' economics can have an impact on family purchasing power. This purchasing power affects the daily intake of young women which can have an impact on the good and bad nutritional status of adolescents.<sup>7</sup>

According to the researcher, what is meant by economic status is the income of the parents of young women who have a percentage of fulfilling daily needs in the family, for example, is the income of the parents of teenagers sufficient for both primary and secondary needs, one of which is the purchasing power of the family in fulfilling the nutritional status of young women. Even though the bivariate test is not significant, in reality the economic status and the incidence of anemia in adolescents have an influence. Because economic status plays an important role in fulfilling the daily nutrition consumed by young women.

### **9. Relationship of Diet with Anemia Incidence in Young Women**

Based on the results of this study, it was found that of the 48 young women who had an adequate diet, 29 (60.4%) did not experience anemia. From the bivariate analysis it showed that young women whose diet was adequate did not experience anemia, obtained a p-value of  $0.186 > 0.05$ , so it can be concluded that there was no significant relationship between diet and the incidence of anemia in class IX adolescent girls at SMPN 4 Babelan Regency Bekasi.

Diet is human behavior in meeting their food needs which includes attitudes, beliefs and food choices. Food is a necessity for living things, various types of food are consumed with various types of processing. Eating patterns are influenced by eating habits, namely the way a person eats food three times a day with the frequency and type of food eaten. A nutritious and balanced diet is a diet that pays attention to the composition of the types of food, regular, not excessive, nor lacking.

The results of the research are in contrast to previous research by Utami et al, with the title the relationship between diet and the incidence of anemia in young women at SMA Muhammadiyah 1 Karanganyar, the results of the study showed that there was a significant relationship between diet and the incidence of anemia in young women at SMA Muhammadiyah 1 Karanganyar. A good diet needs to be formed as an effort to meet nutritional needs. An inappropriate diet will lead to excess nutrient intake or vice versa.

Excess intake can lead to excess weight and other diseases caused by excess nutrients. Conversely, eating less than needed will cause the body to become thin and susceptible to disease.<sup>33</sup>

According to researchers, a good diet in adolescents is the eating habits of the adolescents themselves, whether regularly 3 times a day and the portion of food consumed is sufficient for balanced daily nutrition. It is known that most of the adolescents who attend SMPN 4 Babelan, Bekasi Regency, even though they have economic high, but this is not a benchmark in fulfilling their daily nutritional intake, because in fact more young women skip breakfast and choose to consume external foods whose nutritional content is not guaranteed, for example snacks at school, fast food, drinks containing soda, etc. Even though it was not significant in the bivariate test, in reality the relationship between diet and the incidence of anemia in adolescents is very influential.

#### **10. Correlation between Consumption of Fe Tablets and the Incidence of Anemia in Young Women**

Based on the results of this study, it was found that out of 55 young women who obediently consumed Fe tablets, 30 (54.5%) did not experience anemia. From the bivariate analysis it showed that young women who were non-adherent in consuming Fe tablets and did not experience anemia obtained a p-value of  $0.844 > 0.05$ , so it can be concluded that there was no significant relationship between adherence to consumption of Fe tablets and the incidence of anemia in class IX young women in SMPN 4 Babelan, Bekasi Regency.

Based on previous research, it is known that several factors influence the occurrence of anemia in young women, namely lack of knowledge related to nutrition, inadequate eating patterns, abnormal menstrual patterns and adherence in consuming Fe tablets. Compliance with consuming Fe tablets is influenced by 2 things, namely from health workers and awareness from within a person.

Iron (Fe) tablets are additional iron supplements that contain micronutrients needed by the body, especially for young women who have iron deficiency anemia. An iron anemia can be prevented by consuming iron (Fe) tablets regularly, and can also through a food that has a high iron content. Where hemoglobin levels will affect when taking iron supplements. If the hemoglobin level is within the normal range, the anemia status will also be normal, which is a way to prevent and treat iron deficiency anemia.<sup>26</sup>

Compliance is a change regarding previous behavior from behavior that does not comply with regulations. The problem of adherence is a matter of daily iron supplementation, which results in maintenance related to adherence in consuming Fe tablets in direct presence of health workers.<sup>13</sup> This research is in line with previous research by Lestari et al, with the title *The Relationship between Iron Consumption and the Incidence of Anemia in Students of SMP Negeri 27 Padang*. The results of the study showed that there was no significant relationship between consumption of iron (Fe) and the incidence of anemia in students of SMP Negeri 27 Padang.<sup>18</sup>

According to researchers, consumption of Fe tablets is needed by young women at least once every 2 weeks, especially during menstruation. Where during menstruation additional iron is very important to prevent anemia deficiency in young women. There are several factors that can affect the consumption of Fe tablets, including the knowledge and attitude of the adolescents themselves in obedience and encouragement to consume Fe tablets. Even though it was not significant in the bivariate test, in reality the consumption of Fe tablets and the incidence of anemia in female adolescents is very influential.

### **Limitations**

The limitations of this study were that the research was carried out one by one class (door to door) so that researchers could not reach all classes at SMPN 4 Babelan Bekasi but were only represented by classes IX 1 to IX 5. Then when the researchers examined hemoglobin levels, the questionnaires were distributed to respondents who were not directly supervised, there is a possibility of bias occurring. This bias is caused by several things, including the possibility that the respondent was dishonest in filling out the questionnaire, the respondent filled in by imitating the respondent's answer beside him, and the possibility that the respondent was not serious or thorough in filling out the research questionnaire.

### **Conclusion**

From this research it was found that there is a significant relationship between menstrual patterns and the incidence of anemia in class IX adolescent girls SMPN 4 Babelan Bekasi Regency in 2023. There is no significant relationship between knowledge,

economic status, diet and consumption of Fe tablets with the incidence of anemia in class IX adolescent girls SMPN 4 Babelan Bekasi Regency in 2023.

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