

The Relationship Between Eating Patterns With Anemia Status In Adolescent Girls At Mtsn 1 Deli Serdang

Mahdiah¹, Tazkia Alvisyahrani², Sonya Friscillia³

Ministry of Health Polytechnic 1 Medan, Indonesia¹²³

Correspondent : didimahdiah14@gmail.com¹

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ABSTRACT: Anemia is a condition where the number of red blood cells or hemoglobin (Hb) levels in the blood is lower than normal according to age and gender. To find out the relationship between eating patterns and to find out the relationship between breakfast and anemia status in young women. The design method in this research is *Cross Sectional*. The population is all young women at MTSN 1 Deli Serdang. The sampling in this research was purposive sampling. Data collection was carried out using interviews *semi quantitative food frequency questionnaire* as a research instrument. Data processing through editing, coding, data entry, tabulating. Using the Chi Square test. The results of the study showed that 34.3% of teenagers had a variety of eating types, and 89.3% of teenagers with non-diverse eating types. Adolescents with a frequency of eating >3 times/day were 37.5%. The frequency of eating and eating <3 times/day is 90.4%. The number of teenagers who eat well is 35.7%, and the number of teenagers who eat poorly is 14.3%. Types of eating breakfast in the diverse category were 50.8%, and types of eating were not diverse as much as 49.2%. The frequency of eating in the category once a day was 50.7%, and the frequency of eating in the category <3 times a week was 49.2%. The number of meals in the good category was 50.8%, the sufficient category was 20.6% and the number of meals in the poor category was 28.6%. Anemia status in the anemia category was 23.8%, and anemia status in the non-anemia category was 76.2%. There is a relationship between eating patterns and breakfast (type, frequency, amount) with anemia status at MTSN 1 Deli Serdang.

Keywords: Type of meal, Frequency, Amount, Breakfast, Anemia.



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INTRODUCTION

Anemia is a condition where the number of red blood cells or hemoglobin (Hb) levels in the blood is lower than normal according to age and gender. Healthy human red blood cells contain hemoglobin. The role of hemoglobin is to carry oxygen and other nutrients such as vitamins and minerals to the brain and body tissues. There are differences in normal Hb levels in men and women. Anemic men have Hb levels below 13.5 g/dl, while women have Hb levels below 12 g/dl (Essence 2019).

The normal measurement value for hemoglobin levels for men is >13.5 g/dl, while for women it is >12 g/dl, light hemoglobin levels are $<11-9$ g/dl. Moderate hemoglobin levels <10.9 g/dl. (Pinasti et al., 2020). The impact of anemia is in the form of decreased work productivity, stunted body growth, easy infection, reduced body fitness, and decreased enthusiasm for learning and achievement. (Sustainable et al., 2022)

Breakfast is food consumed in the morning. When viewed from people's habits, breakfast can have two definitions, namely the noun, namely the food consumed and the verb, namely the activity of consuming or eating food in the morning before activities or activities (Suraya et al., 2019).

Breakfast is an important behavior to achieve balanced nutrition, but in reality there are still many Indonesians who are not used to eating breakfast. Breakfast can also increase enthusiasm, prevent fatigue, increase study concentration, and help improve academic performance, while preventing teenagers from consuming unhealthy snacks. (riaureview.com, 2018).

There is not just one dish consumed but the dishes are combined to form one menu for breakfast. Good dishes are dishes that complement each other. Each dish has different nutrients and the dishes are arranged in such a way as to complement them (Zhafirah, 2018).

Overall prevalence of anemia in 2018 globally. The percentage of anemia in women was 27% higher than men (20.3%). Anemia in adolescent girls reaches 32%. The problem of anemia is increasing in Indonesia and is becoming the root of public health problems because the prevalence of anemia in adolescent girls is at the threshold of 20%. (Nadiyah et al., 2022)

According to Riskesdas (2018), the prevalence of iron deficiency anemia among adolescents in Indonesia is approximately 84.6%. (Silitonga & Nuryeti, 2021). Data obtained from rural Deli Serdang district proves that anemia cases reach 71%. (Ministry of Health, 2018). One of the factors causing anemia is limited iron intake. Another cause that has an impact on further symptoms of anemia is that the eyelids, lips, tongue, skin and palms become pale (Chan et al., 2021).

Low iron intake always occurs in teenagers because their food types are not diverse, such as the absence of animal protein and vegetable protein. Due to lack of protein intake, the flow of iron is hampered. (Maharani, 2020). Young women today often reduce food portions because they are more concerned with ideal body posture, which can result in a lack of nutrition needed by the body. This means that teenage girls eat irregular portions. (Octaviana et al., 2021.)

METHOD

Design, Time, and Place

This type of research is observational with a research design *cross sectional*. This research was conducted at MTSN 1 Deli Serdang in May 2023.

Population and sample

The population in this study were young women at MTSN 1 Deli Serdang. The sampling technique was technical *purposive sampling*. Intended for classes VII-1, VII-2, VII-3, VII-4, VII-5, VII-6, VII-

7. The total sample was 63 people who were included in the inclusive criteria.

Types and Methods of Data Collection

The research variables are diet, breakfast and anemia status. Data on eating patterns and breakfast were collected using instruments *SQ-FFQ* (*semi quantitative food frequency questionnaire*) (Jones et al., 2021). Data status anemia measured using a tool *Easy Touch GCHb* (*Glucose, Cholesterol, Hemoglobin*). Hemoglobin (Hb) measurements were carried out on every female student who was present and willing to have her blood taken, was not menstruating, and was not sick (Orolu et al., 2023).

Data analysis

Analysis uses univariate analysis with frequency distribution. And bivariate analysis uses statistical tests *chi-square*. To prove the hypothesis, the p-value is <0.05 (HO Rejected) and it is concluded that there is a significant relationship between the independent and dependent variables (Cho, 2022).

RESULT AND DISCUSSION

Table 1. Distribution Table of Young Women at MTSN 1 Deli Serdang in 2023

Research Variables	Number (n)	Percentage (%)
Young Women's Age		
12 years old	30	47.6
13 years old	28	44.4
14 years	5	7.9
Type of Eating		
Various	35	55.6
Not Various	28	44.4
Meal Frequency		
>3 times a day	32	50.7
>3 times a day	31	49.2
Number of Meals		
Good	28	44.5
Not good	35	55.5
Status Anemia		
Anemia	15	23.8
Not Anemic	48	76.2

Based on table 1 above, it shows that there are 30 teenagers aged 12 years (47.6%), 28 teenage girls aged 13 years (44.6%), 5 teenage girls aged 14 years (7.9%). There were 35 people (55.6%) with various types of eating, and 28 people (44.4%) with non-diverse types of eating. The frequency of eating in the category >3 times a day was 32 people (50.7%), and the frequency of eating in the

category <3 times a day was 31 people (49.2%)(Gallaway et al., 2021; Imtiaz et al., 2021). The number of people eating in the good category was 28 people (44.5%), and the number of eating in the less good category was 35 people (55.5%). Anemia status was in the anemia category as many as 15 people (23.8%), and anemia status in the non-anemia category was 48 people (76.2%)(Nguyen et al., 2023).

A. Bivariate Analysis

1. Relationship between type of eating and anemia status

Table 2. Relationship between type of eating and anemia status

Type of Eating	Status Anemia				Total	%	<i>p-value</i>
	Anemia (n)	%	No Anemia (n)	%			
Various	12	34.3	23	65.7	35	55.5	0,029
Not Various	25	89.3	2	10.7	28	44.4	

Table 2 shows that in the analysis of the relationship between types of food and anemia status of 35 respondents in various types of food, 12 respondents (34.3%) had anemia and 28 respondents out of 25 respondents (89.3%) had anemia in the non-diverse category. The statistical test results showed that the p value = 0.029, meaning < 0.05 . So it can be concluded that there is a relationship between the type of food and anemia status. The results of this research are in line with (Muhayati & Ratnawati, 2019) the occurrence of anemia in young women due to irregular eating patterns, snack habits, not eating breakfast and lunch (Akbarzade et al., 2021). This condition, coupled with the habit of consuming coffee and tea which inhibits iron absorption, will affect hemoglobin levels. The results of the data from this research showed that young women at MTSN 1 Deli Serdang did not have a variety of food types because many teenagers were too picky about food and many also did not like to consume vegetables and fruit. As well as mothers' lack of knowledge in providing diverse and nutritious food. Wrong behavior in teenagers in choosing food is one of the factors that causes various diseases in teenagers, one of which is that it can cause anemia, due to a lack of consuming foods that are sourced from iron (Fe) (Eyoum Bille & Kouitchou Mabeku, 2022; Hardianti et al., 2020).

2. Relationship between Eating Frequency and Anemia Status

Table 3. Relationship between Eating Frequency and Anemia Status

Meal Frequency	Status Anemia				Total	%	<i>p-value</i>
	Anemia (n)	%	No Anemia (n)	%			
>3Kali/hari	12	37.5	20	62.5	32	50.8	0,010
<3 Times/day	28	90.4	3	9.6	31	49.2	

Table 3 shows that the analysis of the relationship between food frequency and anemia status of 32 respondents on food frequency > 3 Times / day. There were 12 respondents (37.5%) who experienced anemia and 31 respondents out of 28 respondents (90.4%) experienced anemia in the

category <3 times a week(Radlović et al., 2019). The statistical test results showed that the p value = 0.010, meaning < 0.05. So it can be concluded that there is a relationship between eating frequency and anemia status.The results of this research are in line with(Safyanti et al. 2018) This means that there is a significant relationship between the frequency of food consumption and the incidence of anemia in female students($p=0.000$). The results of the data from this research showed thatFrequency of unhealthy eating among young women at MTSN 1 Deli Serdang This is because some young women do not like food such as vegetables/fruit, and some also have food restrictions such as allergies to shrimp, eggs and meat. Which can inhibit iron sources and cause anemia(Dave et al., 2021).

3. Relationship between number of meals and anemia status

Table 4. Relationship between number of meals and anemia status

Number of Meals	Status Anemia				Total	%	p-value
	Anemia (n)	%	No Anemia (n)	%			
Good	10	35.7	18		28	44.	
Not good	64.3				35	4	0,04
	5	14.3	30			55.	7
	85.7					5	

Table 4 shows that the analysis of the relationship between the number of meals and anemia status of 28 respondents in the number of meals is in the good category There were 10 respondents (35.7%) who had anemia and 35 respondents out of 5 respondents (14.3%) who had anemia in the poor category. The statistical test results showed that the p value = 0.047, meaning < 0.05. So it can be concluded that there is a relationship between the amount of food eaten and anemia status(Smeuninx et al., 2020; Whatnall et al., 2023). The results of this research are in line with (Fitriani & Ismawati, 2014) that there is a relationship between the amount of food in class XI female students and the incidence of anemia $p= 0.000$. The results of the data from this research are that the number of portions is not good for young women at MTSN 1 Deli Serdang. It is known that young women are sometimes lazy about eating breakfast because they are afraid of stomach ache and can come to school late and also don't eat dinner because they are afraid of getting fat(Muscente & de Caterina, 2020; Ochoa et al., 2021). Wrong eating patterns and social influences because you want to have a slim body and strict diets can result in weight loss and the body lacking the nutrients the body needs, such as iron.

Table 5. Breakfast distribution table for young women at MTSN 1 Deli Serdang in 2023

Research Variables	Number (n)	Percentage (%)
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Young Women's Age		
12 years old	28	47.6
13 years old	30	44.4
14 years	5	7.9
Type of Eating		
Various	32	50.8
Not Various	31	49.2
Meal Frequency		
1x a day	32	50.7
<3 times a week	31	49.2
Number of Meals		
Good	32	50.8
Enough	13	20.6
Less	18	28.6
Status Anemia		
Anemia	15	23.8
Not Anemic	48	76.2

Based on table 5 above, it shows that there are 28 teenagers aged 12 years (47.6%), 30 teenage girls aged 13 years (44.4%), 5 teenage girls aged 14 years (7.9%). There were 32 people (50.8%) with various types of food, and 28 people (49.2%) with non-diverse types of food. The frequency of eating in the category once a day was 32 people (50.7%), and the frequency of eating in the category <3 times a week was 31 people (49.2%). The number of people eating in the good category was 32 people (50.8%), the sufficient category was 13 people (20.6%) and the number of eating in the poor category was 18 people (28.6%). Anemia status was in the anemia category as many as 15 people (23.8%), and anemia status in the non-anemia category was 48 people (76.2%).

4. Relationship between the amount of breakfast eaten and anemia status

Table 6. Relationship between the amount of breakfast eaten and anemia status

Amount of breakfast eaten	Status Anemia				Total	%	<i>p-value</i>
	Anemia (n)	%	No Anemia (n)	%			
Good	10	35.7	22	64.3	32	50.8	0,008
Enough	3	9.6	10	35.7	13	20.6	
Less	6	19.2	12	34.3	18	28.6	

Table 6 shows that in the analysis of the relationship between the amount of breakfast eaten and the anemia status of the 32 respondents, there were 10 respondents (35.7%) who had anemia in the good category. Of the 13 respondents, 3 (9.6%) had anemia in the moderate category. Meanwhile, of the 18 respondents, 6 (19.2%) experienced anemia in the poor category. The statistical test results showed that the value was $p = 0.008 < 0.05$. So it can be concluded that there is a relationship between the amount of breakfast eaten and anemia status. The results of this study

are in line with (Afritayeni 2019) where there is a relationship between the amount of food and hemoglobin levels in adolescent girls at SMP Negeri 20 Pekabnbaru ($p = 0,028$)(Kwon et al., 2023).

5. Relationship between frequency of eating breakfast and anemia status

Table 7. Relationship between frequency of eating breakfast and anemia status

Frequency of Eating Breakfast	Status Anemia				Total	%	<i>p-value</i>
	Anemia (n)	%	No Anemia (n)	%			
1x a day	2	14.3	30	85.7	32	50.8	0,016
<3 x a week	13	35.7	18	64.3	31	49.2	

Table 7 shows that in the analysis of the relationship between food frequency and anemia status of 32 respondents with a frequency of eating once a day, there were 2 respondents (14.3%) who had anemia and 31 respondents out of 13 respondents (35.7%) who had anemia in the <3 times a week category. The statistical test results showed that the p value = 0.016, meaning < 0.05 . So it can be concluded that there is a relationship between eating frequency and anemia status. The results of this study are in line with (Afritayeni 2019) where there is a relationship between eating frequency and hemoglobin levels in adolescent girls at SMP Negeri 20 Pekabnbaru ($p = 0,014$).

6. Relationship between type of breakfast meal and anemia status

Table 8. Relationship between type of breakfast meal and anemia status

Breakfast type of meal	Status Anemia				Total	%	<i>p-value</i>
	Anemia (n)	%	No Anemia (n)	%			
Various	2	14.3	30	85.7	32	50.8	0,008
Not Various	13	35.7	18	64.3	31	49.2	

Table 8 shows that the analysis of the relationship between the type of eating breakfast and the anemia status of 32 respondents in various types of eating, there were 2 respondents (14.3%) who had anemia and 31 respondents out of 13 respondents (35.7%) had anemia in the non-diverse category. The statistical test results showed that the p value = 0.008, meaning < 0.05 . So it can be concluded that there is a relationship between eating frequency and anemia status. The results of this study are in line with (Wahyudi. 2021) where there is a relationship between eating frequency and hemoglobin levels in adolescent girls at SMP Negeri 20 Pekabnbaru ($p = 0,045$).

The results of the data from this research are the number of portions of food that are not good for teenage girls at MTSN 1 Deli Serdang. It is known that teenage girls are sometimes lazy to eat breakfast because their parents don't have time to provide breakfast, they are afraid of stomach ache and they can come to school late and also don't eat dinner. because I'm afraid of getting fat. This will result in difficulty concentrating, resulting in decreased learning achievement, low physical endurance so that you get tired easily, decreased physical activity, easy to get sick because of low endurance, as a result, you rarely go to school/work.

CONCLUSION

There is a relationship between eating patterns and breakfast in terms of type of food, frequency of eating, and number of meals with anemia status in young women at MTSN 1 Deli Serdang in 2023 (Barakat et al., 2023). It is necessary to provide counseling to young women to improve eating patterns and have a good breakfast with food. A variety contains iron, the amount/portion is according to daily recommendations and the frequency of eating is good to increase hemoglobin levels to prevent anemia.

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