Factors Influencing the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung in 2024

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Abstract. The problem of anemia in adolescents is still a fundamental problem in the world. Anemia is associated with insufficient food intake and low food quality. Factors that correlate with the incidence of anemia in adolescents both in urban and rural areas are age, sex, health status of toddlers (ARI, diarrhea, tuberculosis), physical activity, nutritional status, breakfast, and diet, parenting and so on. This study aims to determine the anemia in adolescents. This study is an observational analytical study with a cross sectional design. This research was conducted in February-March 2024 in Cinta Damai Village, West Tanjung Jabung Regency. The population in this study were all toddlers aged 12-18 years. A sample of 89 people was taken by total sampling technique. Data collection using questionnaire sheets. The data obtained were analyzed univariately, bivariately using chi square and multivariate tests. The results showed that there was a relationship between infectious diseases (p =), toddler diet (p =) and parenting style (p =) with anemia in adolescents because the p value < 0.05. There was no relationship between giving MP-ASI too early and anemia in toddlers with a value of p = 0.647 > 0.05. The results showed that there was a significant relationship between the incidence of anemia during pregnancy with breakfast (p = 0.003), diet (p = 0.001) and head circumference because the p value < 0.05. There is no significant relationship between the incidence of anemia during pregnancy and chest circumference in newborns at the Jambi Kecil Muaro Jambi Health Center in 2023 with p values of 0.001 > 0.05. The most dominant factor affecting anemia in toddlers is the diet of toddlers with a value of p = 0.001 with OR = 13.108. It is hoped that the results of this study can provide information and recommendations to conduct a series of counseling and counseling activities for mothers of toddlers to prevent and overcome the problem of underweight.

Keywords: Anemia, Physical Activity, Nutrition Status, Breakfast, Diet.

1. BACKGROUND

Anemia is one of the main nutritional problems often experienced by adolescent girls. Based on the definition of the World Health Organization, anemia is a condition when the number and size of red blood cells or hemoglobin concentration is below the established threshold, thus reducing the blood's ability to transport oxygen to the throughout the body. In Indonesia, the prevalence of anemia in adolescents continues to increase, from 22.7% in 2013 to 32% in 2018 (Ministry of Health of the Republic of Indonesia, 2018).

Anemia in adolescents can have negative impacts, such as decreased immunity, impaired concentration, decreased academic achievement, decreased fitness, and impaired productivity. These impacts also continue during pregnancy and childbirth, which can increase the risk of maternal death, premature birth, and low birth weight (Ministry of Health of the Republic of Indonesia, 2018).

Iron deficiency anemia is the most common type of anemia found worldwide. Based on Riskesdas data, the prevalence of anemia in women aged ≥15 years reached 22.7%, while in

pregnant women it was 37.1%. Nationally, the prevalence of anemia for all age groups is 21.7%. The causes of anemia can vary, including iron deficiency, folate deficiency, infection, genetic factors, and bleeding. In developing countries, about 40% of anemia cases are caused by iron deficiency, known as iron deficiency anemia.

Women are more susceptible to anemia than men, this is because This is because , specifically teenage girls experience menstruation routinely on average every month very (Chasanah et al., 2019) . Adolescent girls are more susceptible to anemia due to blood loss during menstruation which is not balanced with adequate iron intake. In addition, the increased need for iron during adolescence to support growth and development is often not met. Based on Riskesdas 2018, the coverage of adolescent girls who consumed iron tablets reached 76.2%, while 23.8% did not consume the tablets.

Based on Basic Health Research (Riskesdas) data in 2007, 2013, and 2018, there is an increasing trend in the prevalence of anemia in adolescents. In 2018, 23% of adolescents in Indonesia experienced anemia, which is equivalent to around 7.5 million adolescents. This condition puts them at risk of stunted growth, cognitive impairment, and increased susceptibility to infectious diseases (Riskesdas 2007, 2013, 2018).

In 2018, data from the Jambi City Health Office showed that the number of female adolescents with anemia was 196 in the 10–14 age group and 1,169 in the 15–19 age group (Rahmawati, 2018). Meanwhile, in West Tanjung Jabung Regency, the coverage of anemia in female adolescents reached 5.05%, with 225 of the total 4,452 female adolescents who checked their hemoglobin levels identified as having anemia. In addition, as many as 79% of female adolescents in the area had consumed iron tablets (West Tanjung Jabung Health Office, 2022).

At the Lubuk Kambing Health Center, Renah Mendaluh District, West Tanjung Jabung Regency, it was recorded that 47 out of 342 female adolescents who checked their hemoglobin levels had anemia. The examination was carried out in various places, including the Health Center, schools (junior high and high schools), Community Health Centers, and Village Health Posts (Lubuk Kambing Health Center, 2023).

Cinta Damai Village consists of 1045 people, from the data obtained from the Health Center, the number of teenage girls is 41 people, and 18 of them have mild and severe anemia (Love Damai Health Center, 2023).

Adolescent girls have a ten times higher risk of experiencing anemia compared to adolescent boys. This is due to monthly menstruation which causes blood loss and increased iron needs during growth (Tarwoto, 2010).

Anemia is one of the nutritional problems that often occurs in adolescents, especially in developing countries. Based on WHO data, the prevalence of anemia in adolescent girls in developing countries reaches 53.7%. This condition is often triggered by stress, menstruation, or the habit of eating late (WHO, 2010). Beside the above causes for teenagers daughter often making slim the standard of beauty today This causes young women to try to go on a strict diet to get an ideal body and this This can cause lack nutrition specifically substance iron (Utami et al., 2021) .

Anemia is said to be present when the hemoglobin (Hb) level in the blood is lower than normal, namely less than 12 g/dl. (Astuti, 2019) . The results of hemoglobin (Hb) level examinations on five teenagers in Cinta Damai Village showed that two of them had anemia, with Hb levels of 10.5 g% and 10.8 g% respectively, below the normal limit of 12 g%.

Based on these conditions, researchers are interested in conducting research with the title "Factors Influencing the Incidence of Anemia in Adolescents in Cinta Damai, West Tanjung Jabung Regency, 2024"

2.   THEORETICAL STUDY

Anemia is a condition when the hemoglobin (Hb) level in the blood is below normal limits, which reduces the blood's ability to transport oxygen throughout the body. Adolescents, especially adolescent girls, are a group that is vulnerable to anemia due to increased iron requirements during growth and blood loss due to menstruation (World Health Organization, 2010). According to Riskesdas (2018), the prevalence of anemia in adolescents in Indonesia reached 23%, which is equivalent to 7.5 million adolescents. Anemia can cause disorders in growth and development, decreased immunity, concentration, and academic achievement.

Reason main anemia in adolescents is lack substance iron needed For hemoglobin production . Condition This often exacerbated by the lack of intake nutrient- rich foods iron , such as meat red , vegetables green , and nuts (Ministry of Health of the Republic of Indonesia, 2018). Teenagers the princess who experienced menstruation every month lost significant blood loss , especially If cycle her menstruation heavy or No regularly (Tarwoto , 2010).

Habit eat something that is not regular , consumption food low nutrition , as well as limitations access to food nutritious also becomes factor risk main (WHO, 2010). Infection such as malaria, worms , or disease chronic other can causes anemia because influence production and destruction cell blood red (Ministry of Health of the Republic of Indonesia, 2018). Ignorance about importance intake substance iron and pattern Eat balance also contributes to height prevalence of anemia in adolescents (Riskesdas , 2018).

Anemia can started with existence lack nutrition substance iron and iron deficiency in early conditions may not only does not cause symptoms of anemia but it can already affects organ function body. The number of people who experience iron deficiency is 2.5 times greater than the number of people who experience iron deficiency anemia. (Ummah, 2019) . This is must become attention for all teenagers and parents For intensive consumption foods that contain substance iron agar during growth period flower No experience obstacles and problems.

3. RESEARCH METHODS

This research is an observational analytical research with *cross sectional* design . This study was conducted in February-March 2024 in Cinta Damai Village, West Tanjung Jabung Regency. The population in this study were all adolescents aged 12-18 years. A sample of 89 people was taken using the *total sampling technique*. Data collection using a questionnaire sheet. The data obtained were analyzed univariately, bivariately using the *chi square test* and multivariate.

4. RESULTS AND DISCUSSION

Table 1. Respondent Characteristics

No	Characteristics	Amount (f)	Percent (%)
1	**Age**		
	12 years old	11	12.3
	13 years old	9	10.1
	14 years	18	20.2
	15 years	15	16.8
	16 years	15	16.8
	17 years	10	11.2
	18 years	11	12.2
2	**Gender**		
	Man	51	57.4
	Women	38	42.6
3	**Education**		
	Grade 6	11	12.3
	Grade 7	9	10.1
	Grade 8	18	20.2
	Grade 9	15	16.8
	Grade 10	15	16.8
	Grade 11	10	11.2
	Grade 12	11	12.2
4	**Infectious Diseases**	5	5.6
	Yes	84	94.4
	No		

Based on table 1, it can be seen that the majority of respondents were 14 years old (18 respondents (20.2%), male (51 respondents (57.4%), and had no history of infectious diseases (84 respondents (94.4%).

Table 2. Distribution of Respondents Based on the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	*Anemia Occurrence*	Amount	Percentage
1	Yes, Anemia	22	24.7
2	No, Anemia	67	75.3
	Amount	**89**	**100**

Based on table 2 can known that 22 respondents (24.7%) experienced anemia and those who did not 67 respondents (75.3%) experienced anemia.

Table 3. Distribution of Respondents Based on the Results of Physical Activity Examination, Nutritional Status, Breakfast, and Eating Patterns in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	Variables	Amount (f)	Percent (%)
1	**Physical Activity**		
	Not enough	55	61.8
	Good	34	38.2
2	**Nutritional status**		
	Thin	55	61.8
	Normal	34	38.2
	Overweight	0	0
3	**Breakfast**		
	Yes, Breakfast	24	27
	No, Breakfast	65	73
4	**Dietary habit**		
	Often	47	52.8
	Seldom	42	47.2

Based on table 3, it can be seen that the majority of adolescent respondents were not anemic (67 respondents (75.3%), had low physical activity (55 respondents (61.7%), had a thin nutritional status (55 respondents (61.7%), did not eat breakfast (65 respondents (73%), and had an infrequent eating pattern (42 respondents (47.2%).

Table 4. The Relationship Between Physical Activity and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	Physical Activity	Anemia Occurrence						p-value	OR (Lower – Upper)
		Yes		No		N	%		
		N	%	n	%				
1.	Not enough	15	27.3	40	72.7	55	61.8		1,446
2.	Good	7	20.6	27	79.4	34	38.2	.647	.521
	Amount	**22**	**24.7**	**67**	**75.3**	**89**	**100**		4.017

Based on the table above, it is obtained that from 55 respondents with less Physical Activity, most of them experienced *Anemia* as many as 15 respondents (27.3%). From 34 respondents with good adolescent physical activity, most of them did not experience *Anemia* as many as 27 respondents (79.4%).

The results of the statistical test obtained a P value = .647 or a p value <0.05, so it can be concluded that there is no relationship between adolescent physical activity and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency.

Table 5. Relationship between Nutritional Status and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	Nutritional status	Anemia Occurrence						p-value	OR (Lower – Upper)
		Yes		No		N	%		
		n	%	n	%				
1.	Thin	15	27.3	40	27.7	55	100		1,446
2.	Normal	7	20.6	27	79.4	34	100	.647	.521
	Amount	**22**	**24.7**	**67**	**75.3**	**89**	**100**		4.017

Based on the table above, it is obtained that from 89 respondents with normal nutritional status, most of them experienced thin nutritional status as many as 27 respondents (79.4%). From 34 respondents with normal nutritional status, most of them did not experience *anemia* as many as 40 respondents (27.7%).

The results of the statistical test obtained a P value = .647 or a p value <0.05, so it can be concluded that there is no relationship between nutritional status and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency.

Table 6. The Relationship Between Breakfast and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	Breakfast	Anemia Occurrence						p-value	OR (Lower – Upper)
		Yes		No		N	%		
		n	%	N	%				
1.	Yes	0	0	24	100	24	100		10,790
2.	No	22	33.8	43	66.2	65	100	.003	1,270
	Amount	**22**	**24.7**	**67**	**75.3**	**89**	**100**		1,799

Based on the table above, it was found that of the 65 respondents who did not eat breakfast, most of them experienced anemia, 22 respondents (33.8%). Of the 24 respondents who ate breakfast, most of them did not experience *anemia*, 24 respondents (100%).

The results of the statistical test obtained a P value = 0.003 or a p value > 0.05, so it can be concluded that there is a relationship between breakfast and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency.

Table 7. The Relationship Between Diet and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

No	Dietary habit	Anemia Occurrence				N	%	p-value	OR (Lower – Upper)
		Yes		No					
		n	%	n	%				
1.	Often	19	40.4	28	59.6	47	100		8,821
2.	Seldom	3	7.1	39	92.9	42	100	.001	2.378
	Amount	**22**	**24.7**	**67**	**75.3**	**89**	**100**		32,722

Based on the table above, it is obtained that out of 42 respondents who rarely do eating patterns, 3 respondents (7.1%) experienced anemia. Of the 28 respondents who often do eating patterns, no *anemia occurred* at all. The results of the statistical test obtained a value of P = 0.001 or a value of p > 0.05, it can be concluded that there is a relationship between eating patterns and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency.

Table 8. Multivariate Modeling Candidate Selection Results

Variables	p Value	Information
Physical Activity	0.647	No Candidate
Nutritional status	0.647	No Candidate
Breakfast	0.003	Candidate
Dietary habit	0.001	Candidate

Based on table 8, it is known that of the 4 (four) variables that underwent bivariate analysis, there were 2 (two) variables that met the requirements to enter multivariate modeling with *a p Value* < 0.25, namely breakfast = 0.003, and eating patterns = 0.001.

Table 9. Multivariate Initial Model

No.	Variables	B	SE	p Value	Exp B	95%	
						Lower	Upper
1	Breakfast	1,632	0.398	0,000	10,721	3,921	73,431
2	Dietary habit	1,467	0.314	0,000	12,673	3,835	51,476

Based on table 9, it is known that 2 (two) variables produce *p value* <0.05, namely tangibles. The variable with the same *p value is 0.000 so that the next modeling enters the final multivariate modeling.*

Table 10. Multivariate Final Model

No.	Variables	B	SE	*p Value*	Exp. B	95%	
						Lower	Upper
1	Breakfast	1,874	0.476	0,000	10,912	4,984	73,592
2	Dietary habit	1,579	0.459	0,000	13,108	4,059	49,637

The results of the multivariate analysis in the table above show that the breakfast variable (*p value* 0.000) and the diet variable (*p value* 0.000) have a significant effect on the incidence of anemia with *a p value* <0.05. The magnitude of the effect is indicated by the Exp. B value or called *the Odds Ratio* (OR) which is in the breakfast variable of 10.912 and diet of 13.108, where the Exp.B value of the adolescent diet is greater than the Exp.B value of breakfast. Thus it can be concluded that the adolescent diet variable is the most dominant factor influencing the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency.

The Relationship between Physical Activity and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

The statistical test results obtained a P value = .647 or p value <0.05, it can be concluded that there is no relationship between physical activity and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency. The p value = .647 physical activity 1.446 times for the occurrence of anemia in adolescents with the lowest probability of .521 times and the highest 4.017 times so it can be concluded that there is no relationship between physical activity and hemoglobin levels in adolescents in Cinta Damai Village. The results of the study explain that, the increase in iron levels after physical activity is thought to be caused by changes in plasma and blood volume in response to physical activity. Immediately after physical activity, plasma and blood volume will decrease as a result of fluid loss through sweat and respiration, filtration into the extravascular space as a result of increased arterial pressure and muscle contraction during physical activity and increased tissue oncotic pressure due to accumulation of metabolites such as lactate (Wagu, 2019).

Opinion study supported by the theory put forward by Lee (2018), which states that activity physical that can influence hemoglobin levels are activity physique heavy . Activity too physical heavy can causes hematuria, hemolysis , and bleeding in the urinary tract digestion, which has the potential affect the status of the substance iron body.

Research result This in line with a study conducted by Hasyim (2018) in Pringsewu, Lampung, which showed that p-value of 0.152 (p > 0.05) with OR value of 0.518 (95% CI

0.233 - 1.153), so that can concluded that No There is connection significant between activity physique with incidence of anemia in adolescents daughter at State Senior High School 2 Pringsewu Lampung. Research it also explains that anemia contributes to the decline activity physical in adolescents, where anemia becomes reason activity physique they decrease.

Based on results study said, it was concluded that part big teenagers (55 people) less do activity physical, while part other (34 people) have habit activity good physical condition. It is recommended that teenagers guard health physical and spiritual by doing it regularly activity physical, whether light, moderate, or severe weight, and diligent exercise. This is aiming For create more body strong and healthy as well as support quality a better life Good.

The Relationship between Nutritional Status and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

The results of the statistical test obtained a value of P = .647 or a value of $p < 0.05$, so it can be concluded that there is no relationship between nutritional status and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency. The value of p = .615 nutritional status 1,446 times for the occurrence of anemia in adolescents with the lowest probability of .521 times and the highest 4,017 times.

Research conducted by Purba 2024 shows that 41.9% of teenagers have poor nutritional knowledge (Purba, 2015) . This figure is very high. For teenagers, remembering teenager is stage productivity and still in stage grow flower . According to Megistu and Azage (2019) in North West Ethiopia, nutrition is one of factor the main determining factor quality source Power human. Sufficiency nutrition is very important for every individual, starting from the past womb, babies, children, teenagers, up to age continue. Adequacy nutrition influenced by various factors, such as age, type gender, activity, weight, and height. Overview of nutritional status somebody reflect pattern consumption nutrition in term long time.

Opinion the reinforced by Siva and Sobha (2020) in Central Kerala, who stated that problem nutrition often associated with increasing consumption food low processed content nutrition but tall calories , so that trigger obesity in adolescents . Consumption of junk food is one of the reason teenager prone to experience lack Nutrition. Deficiency nutrition that is not adequate can cause various problem health that affects quality live in the future day. In adolescents, deficiencies nutrition can influenced by factors like emotions that are not stable, wrong desire to become thin, and style life and environment social that is not stable. Problem frequent nutrition occurs in adolescents covering obesity and anemia. Deficiency Nutrition in adolescents is also often because of teenager No know and understand need nutrition in

adolescents like research by Hartanti the year 2024 which shows There is connection between knowledge about nutrition with nutritional status teenager (Hartanti et al., 2024) .

In line with that, research by Shariff and Akbar (2018) shows that p-value of 0.306 (p > 0.05), which indicates No existence connection significant between nutritional status and the incidence of anemia. In the study this, 40 teenagers with thin nutritional status or not enough No experiencing anemia because they consume regularly food Healthy like vegetables, side dishes, fish, fruit and food nutritious other For fulfil need his body.

Therefore that, teenager recommended For repair pattern Eat with apply guidelines nutrition balanced such as "Fill My Plate," which includes carbohydrates, animal protein, vegetable protein, vitamins and minerals in every portion eat. In addition, it is important For notice quantity, type, and frequency eat, because pattern eat healthy and regularly can help increase ideal and supportive body weight health in a way overall.

The Relationship Between Breakfast and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

The statistical test results obtained a value of P = 0.001 or a value of p <0.05, so it can be concluded that there is a relationship between breakfast and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency. The p value = 0.003 breakfast 10.790 times for the occurrence of anemia in adolescents with the lowest chance being 1.270 times and the highest 1.799 times.

Breakfast is activity eat in the morning day before start activities, which aim to For fulfil need substance energy, substance builders, and substances regulator. For teenagers who are still go to school, breakfast is source supporting energy activities and learning at school . Breakfast own role important in provide energy and nutrition daily, but Lots teenagers who miss habit This is. This is can impact on the decline level substance iron in blood, which in the end can causes anemia (Asnia, 2022).

Breakfast required For ensure availability the energy that will used body in the early hours activity . No breakfast can cause body lack the energy required, especially For support the learning process. At night day, body still carry out the oxidation process For produce energy used by vital organs such as heart, lungs, and muscles (Moehji, 2019).

Study This support findings from Tandirerung (2019), which shows existence connection between habit breakfast morning and the incidence of anemia. These results are also consistent with Dewi's research (2018), which found that teenager the princess who is not

used to breakfast own risk six times more tall For own low hemoglobin levels compared to with teenager a daughter who eats breakfast regularly.

From the results research, it is known that part big teenagers (58 people) no own habit breakfast morning, meanwhile part others (31 people) are accustomed to breakfast. Condition This show the need effort social For increase awareness about importance breakfast Morning.

Therefore that, teenager expected For get used to self breakfast every Morning before activities . Breakfast provide carbohydrates that help guard blood sugar levels remains normal, which in turn increase energy , concentration , and productivity . In addition , breakfast morning also gives contribution important to fulfillment need nutrition body , such as proteins, vitamins, fats, and minerals, which play a role important in support health body in a way overall (Ali Khomsan, 2021).

The Relationship between Diet Patterns and the Incidence of Anemia in Adolescents in Cinta Damai Village, West Tanjung Jabung Regency

The statistical test results obtained a value of P = 0.001 or a value of p <0.05, so it can be concluded that there is a relationship between diet and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency. The results of the logistic regression test showed that the dominant factor influencing the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency was the adolescent's diet with a value of p = 0.001. Diet has a risk of 8,821 times for the occurrence of anemia with the lowest chance being 2,378 times and the highest 32,722 times.

Diet is a way to regulate the quantity of food, types of food, and portions of food so that it can improve the quality of health, psychology, prevention and the healing process of illness. Good eating habits always represent optimal nutritional fulfillment (Ministry of Health of the Republic of Indonesia, 2018).

The results of this study are in line with Asifa's (2021) research on the relationship between dietary patterns and the incidence of anemia during the COVID-19 pandemic in Bengkulu City, which showed that the statistical test results obtained a v value of 0.001. Similar research has also been conducted done by Merlisia the year 2024 which shows that There is a relationship between breakfast habits and the incidence of anemia in adolescent girls. (Merlisia et al., 2024).

Based on results the research above, can concluded that habit breakfast morning and pattern Eat is factor dominant influencing the incidence of anemia in adolescents. This is caused by a tendency teenager For guard Posture body to look ideal and fashionable with

method limit intake nutrition and nutrition , as well as not enough apply pattern life Healthy in life daily .

Without realized, attitude like This impact negative on quality and quantity life teenager That myself Therefore that, it is recommended that teenagers change pattern his life become more Healthy by doing it regularly activity physical, exercising, and maintaining strength as well as health body. In addition, teenagers are also advised For check it out health regularly at the integrated health post teenager or facility health other every month.

For create pattern healthy life, teenagers need guard habit breakfast morning and pattern eat well, correctly and regularly. Breakfast important done every day For guard stability condition body before start activities. A sufficient and balanced diet is also a must applied with consume diverse type food, such as food staples, side dishes, vegetables and fruit. This step important For guard health and fitness body in term long.

5.   CONCLUSION AND SUGGESTIONS

The research and discussion that has been described provide a conclusion that there is no relationship between physical activity and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency with a p value = 0.647, there is no relationship between nutritional status and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency with a p value = 0.647, there is a relationship between breakfast and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency with a p value = 0.003, there is a relationship between diet and the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency with a p value = 0.001. The most dominant factor influencing the incidence of anemia in adolescents in Cinta Damai Village, West Tanjung Jabung Regency is the adolescent's diet with a p value = 0.001 with OR = 13.108. It is expected that all related parties will carry out a series of counseling and outreach activities for adolescents to prevent and overcome the problem of anemia. such as improving the regularity of checking Hb, doing physical activity, routinely doing health checks, diligently eating breakfast before doing activities, and having a good and correct diet.

REFERENCE LIST

Ade. (2019). The relationship between diet patterns and the incidence of obesity in adolescents in the Kunti Ponorogo Health Center work area.

Angraeni, L. (2022). *Journal of community service: Early detection of anemia*. Jakarta, Indonesia.

Ashifa Mutia. (2021). The relationship between diet and physical activity with the incidence of adolescent obesity during the COVID-19 pandemic at SMP N 20, Bengkulu City.

Astuti, A. W., et al. (2019). *Module for millennial youth generation free from anemia*. BKKBN.

Chasanah, S. U., Basuki, P. P., & Dewi, I. M. (2019). Anemia causes, prevention and management strategies for adolescents. *Angewandte Chemie International Edition, 6*(11), 951–952.

Desi. (2023). The relationship between diet patterns and physical activity with the nutritional status of students at SMP IT Al-Alam Indra Giri Hulu.

Hartanti, A., Harwati, R., & Arswinda, A. (2024). The relationship between knowledge about nutrition and nutritional status in grade VII adolescent girls at SMP N 3 Boyolali. *Journal of Nursing Horizons, 01*(02), 134–145.

Iklia Marita. (2019). Hemoglobin level profile, nutritional status of breakfast habits, and learning achievement in class II students of MTS Al Asror, Gunung Pati District, Semarang City.

Legina Angraeni. (2022). *Journal of community service: Early detection of anemia*. Jakarta, Indonesia.

Merlisia, M., Setyarsih, L., Novianti, T. A., Arnisaputri, D., City, J., Merlisia, M., Setyarsih, L., Novianti, T. A., & Arnisaputri, D. (2024). The relationship between breakfast habits and the incidence of anemia in adolescent girls in the work area of Rawasari Health Center, Jambi City. *Nightingale Journal of Nursing, 12*, 9–12.

Purba, N. P. (2015). Factors affecting the nutritional status of adolescents of MTS Al-Washliyah, Celawan Village, Pantai Cermin District, Serdang Bedagai Regency. *Angewandte Chemie International Edition, 6*(11), 951–952, 1(April), 72–81.

Retno, S. (2021). Indonesian midwifery journal symposium: Breakfast intake and physical activity, South Jakarta.

Ummah, M. S. (2019). Guidelines for the prevention and management of anemia in adolescent girls and women of childbearing age (WUS). *Sustainability (Switzerland), 11*(1), 1–14. http://scioteca.caf.com/bitstream/handle/123456789/1091/RED2017-Eng-8ene.pdf?sequence=12&isAllowed=y

Utami, A., Margawati, A., Pramono, D., & Diah Rahayu Wulandari. (2021). Anemia in adolescent girls. In *Faculty of Medicine, Diponegoro University* (Vol. 1, No. 2). http://doc-pak.undip.ac.id/12690/1/Modul_Anemia.pdf