E-ISSN: 2987-209X
International Journal of Midwifery and Health Sciences
Vol. 2, Issue 2 (2024), July

Factors Associated With The Incidence Of Anaemia In Grade X Students At Sman 1 Sukahaji, Majalengka District In 2023

Diyanah Kumalasary[1]*, Ria Yulianti Triwahyuningsih[2], Lia Muliawaty[3], Fika Nurul Hidayah[4], Siti Difta Rahmatika[5], Faridah[6]

[1,2,3,4,5,6] Midwifery Department, STIKes Muhammadiyah Cirebon, Indonesia
** Corresponding Author: yuliantiria18@gmail.com*

Submission date: 26-07-2024; Date of received: 29-07-2024

Abstract

Anemia is a condition in which the number and size of red blood cells or hemoglobin levels fall below the set normal limit, resulting in disruption of the capacity of the blood to transport oxygen throughout the body. The incidence of anemia in Indonesia is 48.9% with the proportion of anemia in the age group 15-24 years namely 32%. The purpose of this study was to determine the factors associated with the incidence of anemia in class X students at SMAN 1 Sukahaji, Majalengka Regency in 2023. This type of research uses an observational analytic study with a cross sectional approach. The number of samples is 129 female students taken by probability random sampling from 187 female students. The data were analyzed using the Chi-Square statistical test. From the results of statistical tests, it was found that there was a relationship between nutritional status (p=0.017), menstrual cycle (p=0.014), menarche (p=0.000), knowledge about anemia (p=0.000) and adherence to taking iron supplement tablets (p=0.000) with the incidence of anemia in class X students at SMAN 1 Sukahaji, Majalengka Regency in 2023. It was concluded that nutritional status, menstrual cycle, menarche, knowledge about anemia and adherence to taking blood supplement tablets are factors associated with anemia in class X students at SMAN 1 Sukahaji, Majalengka Regency in 2023. It is recommended for female students to increase consumption of iron and protein and it is hoped that the role of parents or teachers to monitor female students in consuming iron tablets.

Keywords: Anemia, Teenagers, Fe Tablets.

Introduction

The transition period from childhood to adulthood makes many changes in a teenager, both physical, psychological, and psychosocial changes. The growth and development that occurs in adolescence is a phase of very rapid change. Physically, the major changes that occur are in the process of sexual maturation and changes in posture which have an impact on increasing nutritional and food needs in adolescents.(Fikawati, Syafiq and Veratamala, 2017)

Psychic changes occur in emotional reactivity, cognitive control, and self-regulation that affect how adolescents make decisions, including their choices about what and when to eat (WHO, 2017). Adolescents consume a lot of food outside the home such as at school or at street vendors, coupled with increased autonomy in adolescents and strong peer influence make adolescents' food choices very free. Dietary and lifestyle habits are also formed during this time, affecting various forms of malnutrition. Poor food consumption puts adolescents at risk of poor growth and micronutrient deficiencies that lead to anemia (UNICEF, 2021).

The incidence of anemia in Indonesia is 48.9% with the proportion of anemia in the age group of 15-24 years is 32% (Rikesdas, 2018). Other data shows that in adolescent girls aged 13-19 years in West Java, the prevalence of anemia reaches 41.9% (West Java Health Office, 2021). Meanwhile, according to data from the Majalengka Regency health office in 2022, it shows that adolescents with anemia are 12.9%. From data obtained from the Sukahaji Health Center in 2022, the incidence of anemia in adolescent girls at SMAN 1 Sukahaji was 28.34%.

The cause of anemia in adolescents is due to a lack of nutrient intake (Ministry of Health, 2018). The lack of micronutrients caused by poor food consumption in adolescents can lead to anemia. Lack of nutritional intake is also affected by impaired iron absorption such as caused by worms in the body that can interfere with the absorption of food nutrients (WHO, 2017). Nutritional status as a reflection of a person's nutritional adequacy affects the incidence of anemia. Nutritional status with a thin category will have an increased risk of anemia because the protein contained in the body is lacking. Adolescents with thin nutritional status have a 1.5 times risk of developing anemia compared to normal nutritional status (Fikawati, 2017). Meanwhile, being overweight and obese show an increased risk of iron deficiency (WHO, 2017).

Adolescent girls who suffer from anemia when they become pregnant are at risk of giving birth to Low Birth Weight (BBLR) and stunting. Iron nutritional anemia is one of the main causes of anemia, including due to insufficient intake of iron source foods (Ministry of Health, 2021)

The impact of anemia that occurs in adolescents includes interfering with learning and productivity, decreasing physical fitness and thinking agility due to lack of oxygen to brain cells, decreasing individual working capacity, decreasing immunity so that anemia sufferers are susceptible to infectious diseases, and decreasing the ability to regulate body temperature (Fikawati, 2017 & Ministry of Health of the Republic of Indonesia, 2018).

The results of the study on 104 adolescent girls showed that most of the adolescent girls (86.4%) aged 12-18 years, 83 people (79.8%) adolescent girls experienced anemia before being given blood supplement tablets. After being given blood supplement tablets for 12 weeks and mentoring, 69 people (66.3%) adolescent girls were obedient in consuming blood supplement tablets and most adolescent girls (81.2%) did not experience anemia after consuming blood supplement tablets for 12 weeks (Kaltsum, 2021).

The purpose of this study is to determine the factors related to the incidence of anemia in class X students at SMAN 1 Sukahaji, Majalengka Regency in 2023.

Method

This type of research uses observational analytical research with a cross sectional approach. Which was held in June 2023 at SMAN 1 Sukahaji, Majalengka Regency. The sample of this study is adolescent girls aged 14-17 years. The sample was selected based on the probability random sampling technique and as many as 127 adolescent girls who met the inclusion and exclusion criteria. The inclusion criteria for this study are adolescents who are 14-17 years old in middle adolescence, adolescents who have experienced menstruation, adolescents who are not menstruating at the time of the study, and are willing to be respondents. Meanwhile, the exclusion criteria are respondents who have a history of illness or are under treatment.

This study consists of a bound variable and an independent variable with the incidence of anemia as a bound variable. The independent variables in this study were

nutritional status, menstrual cycle, menarche, knowledge about anemia, adherence to taking blood supplement tablets. Data processing is carried out by editing, coding, tabulating, and entry. Data analysis includes univariate analysis and bivariate analysis. The results of this research data were processed using the chi-square statistical test in the SPSS program.

Results

Table 1 Characteristics of adolescent girls at SMAN 1 Sukahaji Majalengka Regency

Variable	n	%
Incidence of Anemia		
Incidence of Anemia	80	62
Anemia	49	38
Total	129	100
Nutritional Status		
Normal	75	58,1
Abnormal	54	41,9
Total	129	100
Menstrual Cycle		
Normal	73	56,6
Abnormal	56	43,4
Total	129	100
Menarche		
Age <11 tahun	5	3,9
Age 11-13 tahun	107	82,9
Age >13 tahun	17	13,2
Total	129	100
Knowledge		
Good	63	48,8
Enough	48	37,2
Less	18	14
Total	129	100
Fe Tablet Consumption		
Obedient	78	60,5
Non-Compliance	51	39,5
Total	129	100

Table 1 shows that the number of students who are not anemic is 80 people (62%) and those who are anemic are 49 people (38%). The majority of students have normal nutritional status, namely 75 people (58.1%) and 54 students with abnormal nutritional status (41.9%). The majority of female students have a normal menstrual cycle, namely 73 people (56.6%) and 56 people (43.4%) with an abnormal menstrual cycle. The majority of female students experienced menarche at the age of 11-13 years (82.9%) and those who experienced menarche at the age of >13 years were 17 people (13.2%) and those who experienced menarche <11 years were 5 people (3.9%). The majority of female students have good knowledge about anemia, namely 63 people (48.8%), who have sufficient knowledge about anemia as many as 48 people (37.2%) and who have a poor level of knowledge as many as 18 people (14%). The majority of students

obediently consumed Blood Additive Tablets as many as 78 people (60.5%) and those who were not obedient were 51 people (39.5%).

Table 2 Bivariate Analysis

Variable	Kejadian Anemia				Total		Nilai *p-value*	*α*
	Tidak Anemia		Anemia					
	n	%	n	%	n	%		
Status Gizi								
Normal	53	41,1	22	17,1	75	58,2	0,017	0,05
Tidak Normal	27	20,9	27	20,9	54	41,8		
Total	80	62	49	38	129	100		
Siklus Menstruasi								
Normal	52	40,3	21	16,3	73	56,6	0,014	0,05
Tidak Normal	28	21,7	28	217	56	43,4		
Total	80	62	49	38	129	100		
Menarche								
Usia <11 tahun	1	0,8	4	3,1	5	3,9		
Usia 11-13 tahun	75	58,1	32	24,8	107	82,9	0,000	0,05
Usia >13 tahun	4	3,1	13	10,1	17	13,2		
Total	80	62	49	38	129	100		
Pengetahuan								
Baik	58	45	5	3,8	63	48,8		
Cukup	20	15,5	28	21,7	48	37,2	0,000	0,05
Kurang	2	1,5	16	12,5	18	14		
Total	80	62	49	38	129	100		
Kepatuhan Minum TTD								
Patuh	61	47,3	17	13,2	78	60,5	0,000	0,005
Tidak Patuh	19	14,7	32	24,8	51	39,5		
Total	80	62	49	38	129	100		

Discussion

Anemia is a condition where the number and size of red blood cells or hemoglobin levels drop from the normal limits set, resulting in disruption of blood capacitation to transport oxygen throughout the body (WHO, 2017). Anemia in adolescents is a condition experienced by adolescents, especially in adolescent girls where the hemoglobin level in the blood is below the normal limit, which is below 12 gr

/ dl. Adolescents are at a time when nutritional problems often occur which often lead to anemia (Kemenkes RI, 2018)

Anemia in adolescents can cause interference with learning activities and activities carried out. Prevention of anemia must be done in adolescents so that disorders due to anemia do not occur. Midwives and other health workers who are in contact with adolescents must provide counseling on anemia prevention and play an active role in carrying out the Ministry of Health's recommendations on anemia prevention.

The results of statistical tests in this study indicate that there is a significant relationship between nutritional status and the incidence of anemia in class X students at SMAN 1 Sukahaji. The description of nutritional status in this study is based on the results of IMT measurements. BMI is a simple tool to monitor nutritional status, especially with regard to underweight and overweight. Two parameters related to the measurement of body mass index, consisting of body weight and height. Body weight is measured to reflect the sum of several nutrients such as protein, fat, water, and minerals. Height, on the other hand, represents past nutritional status and is an accumulation of food consumption (Ministry of Health, 2017).

Major changes in adolescents require special attention as this period determines the health of adolescents in the future. Nutrition checks and providing adolescents with knowledge about nutritious food choices should be provided by health workers, especially by midwives.

The results of statistical tests in this study indicate that there is a significant relationship between the menstrual cycle and the incidence of anemia in class X students at SMAN 1 Sukahaji. The results of this study are in line with the results of research by Nofianti et al in 2021, which showed that out of 89 respondents, the distribution of respondents who experienced abnormal and normal menstrual cycles was almost the same, namely 44 respondents (49.4%) experienced abnormal menstrual cycles and 45 respondents (50.6%) experienced normal menstrual cycles.

Stress levels also affect the accuracy of the menstrual cycle in adolescents. According to research it was found that adolescents who experience stress are 4.7 times likely to get an irregular menstrual cycle. This happens because stress will affect the production of the hormone prolactin which is directly related to the activity of basal

cortisol elevation and raises the hormone LH. Furthermore, this has an effect on the onset of menstrual disorders (Islamy, 2019).

Therefore, it is necessary to increase the knowledge of adolescents to find out more about the menstrual cycle and its handling so that adolescents do not need to feel anxious about common cycle disorders. The role of midwives is to conduct counseling and health checks regarding the reproductive system in adolescents.

The results of statistical tests in this study indicate that there is a significant relationship between the age of menarche and the incidence of anemia in class X students at SMAN 1 Sukahaji. The results of this study are also in line with the results of Mutasya's research that the average age of menarche of Adabiah Junior High School students is 12.29 ± 0.49 years (Mutasya, 2016).

To prevent the occurrence of menarche too early or too late in adolescents, among others, by implementing PHBS, monitoring the association or spectacle of adolescents and providing good nutritional intake. The role of midwives is to conduct counseling and health checks regarding nutrition in adolescents.

The results of statistical tests in this study indicate that there is a significant relationship between knowledge and the incidence of anemia in class X students at SMAN 1 Sukahaji. The majority of respondents had good knowledge about anemia. This is inseparable from the role of Sukahaji Health Center health workers who routinely conduct counseling every month at SMAN 1 Sukahaji. Every month the person in charge of the Nutrition program from the Sukahaji Puskesmas together with the person in charge of the UKS SMAN 1 Sukahaji provide counseling and distribute TTD to female students.

The results of this study are different from the results of research conducted by Fajriyah on the knowledge of adolescent girls about anemia, it is known that as many as 27 adolescent girls (64.3%) have poor knowledge about anemia, and as many as 15 adolescent girls (35.7%) have good knowledge about anemia. It can be concluded that young women who are class X students of State Senior High School 1 Wiradesa are less knowledgeable about anemia (Fajriyah, 2016).

One of the efforts to improve the knowledge of adolescent girls about nutrition through nutrition education and campaigns using methods that are attractive to adolescents, lack of knowledge about nutrition causes some adolescents not to

understand whether the daily food consumed meets the requirements of a balanced menu or not, by increasing adolescents' knowledge about nutrition can be used as an initial stage so that adolescents want and are able to choose food consumption that is good for their bodies.

The results of statistical tests using the Chi square test obtained a p-value of 0.000 which means Ha is accepted (p-value <0.05), in other words that there is a significant relationship between adherence to taking blood tablets with the incidence of anemia in class X students at SMAN 1 Sukahaji. Recommendations for taking blood tablets for adolescent girls are to take 1 tablet once a week, take blood tablets after meals, drink with water, do not drink with tea, milk, and coffee or after taking blood tablets (Kemenkes RI, 2018). Midwives provide counseling, information and education to adolescent girls about the benefits of giving Blood Addition Tablets and involve parents of adolescent girls will help increase the level of compliance of adolescent girls in the Blood Addition Tablet administration program.

Conclusion

The conclusions that can be concluded with the research entitled ‘Factors Associated with the Incidence of Anaemia in Class X Students of SMAN 1 Sukahaji Majalengka Regency in 2023’ are:

1. Most of the students are not anaemic, the nutritional status of the students is normal, the students experience a normal menstrual cycle, the students experience menarche at the age of 11-13 years, the students have good knowledge about anaemia and obediently consume TTD.
2. There is a relationship between nutritional status and the incidence of anaemia in Class X students of SMAN 1 Sukahaji, Majalengka Regency in 2023.
3. There is a relationship between menstrual cycle and the incidence of anaemia among Class X female students of SMAN 1 Sukahaji, Majalengka Regency in 2023.
4. There is a relationship between menarche and the incidence of anaemia in Class X female students of SMAN 1 Sukahaji, Majalengka Regency in 2023.
5. There is a relationship between knowledge about anaemia and the incidence of anaemia in Class X female students of SMAN 1 Sukahaji, Majalengka Regency

in 2023.

6. There is a relationship between adherence to taking blood supplement tablets and the incidence of anaemia among Class X female students of SMAN 1 Sukahaji, Majalengka Regency in 2023.

References

1. Astuti R, Ertiana D. Anemia dan penyebabnya. Jawa Timur: Pustaka Abadi: 2018.
2. Atikah R, Syahadatinna M, Yulidasari F. Kesehatan Reproduksi Remaja. Surabaya:Airlangga Press:2017.
3. Cholifah, Noor, et al. Hubungan Siklus Menstruasi Dan Indek Massa Tubuh (IMT) Dengan Kejadian Anemia Pada Remaja Di Smk Islam Jepara. Jurnal Ilmu Keperawatan dan Kebidanan, 2020:11(2): 302-307.
4. Fajriyah, dkk. Gambaran Tingkat Pengetahuan Tentang Anemia Pada Remaja Putri. Jurnal Ilmiah Kesehatan, Vol.9, No. 1. 2016.
5. Fikawati. Gizi anak dan remaja. Depok: Raja Grafindo Persada: 2017.
6. Islamy A, Farida F. Faktor-faktor yang memengaruhi siklus menstruasi pada remaja putri Tingkat III. Jurnal Keperawatan Jiwa (JKJ). Persatuan Perawat Nasional Indonesia. 2019: 7(1): 13-18.
7. Kementrian Kesehatan RI. Penilaian status gizi. Jakarta: Kemenkes: 2017.
8. Kementrian Kesehatan RI. Pedoman pencegahan dan penanggulangan anemia pada remaja putri dan wanita usia subur (WUS). Jakarta: Kemenkes: 2018.
9. Kementrian Kesehatan RI. Aksi bergizi untuk remaja. Jakarta: Kemenkes: 2019.
10. Marmi. 2013. Gizi Dalam Kesehatan Reproduksi. Yogyakarta : Pustaka Pelajar. Martiasari, Anita, et al. Hubungan Pengetahuan Status Gizi dan Pola Menstruasi Pada Anemia Remaja Putri. SIMFISIS Jurnal Kebidanan Indonesia, 2022: 1(3): 131-137.
11. Ningsih E, dkk. Kesehatan reproduksi remaja. Bandung: Media Sains Indonesia: 2020. Putri, dkk. Pengetahuan Gizi, Pola Makan, dan Kepatuhan Konsumsi Tablet Tambah Darah dengan Kejadian Anemia Remaja Putri. Jurnal Kesehatan Poltekkes Tanjungkarang, Vol. 8, No.3. 2017.
12. Putri, Kristy M. Hubungan Pengetahuan Dengan Kejadian Anemia Pada Remaja Putri di Wilayah Kerja Puskesmas Paal Merah I Kota Jambi Tahuan 2018. Scientia Journal Vol. 7 No. 01: 2018.
13. Rosidah D. Buku ajar kesehatan reproduksi remaja dan wanita. Yogyakarta: Pustaka Baru: 2021.

14. Sartika W, Anggraeni S. Asupan zat besi remaja putri. Pekalongan: NEM: 2021. Subratha, Kadek SA. Gambaran Tingkat Pengetahuan Remaja Putri Tentang Anemia di Tabanan. Jurnal Medika Usada, Vol.3, No.2: 2020.
15. UNICEF. Nutrition in middle childhood and adolescence. New York: UNICEF: 2021.
16. Widiastuti A, Rusmini. Kepatuhan Konsumsi Tablet Tambah Darah Pada Remaja Putri. J Sains Kebidanan. 2019;1(1).
17. World Health Organization. Nutritional anaemias: tools for effective prevention and control. Switzerland: The WHO Document Production Services: 2017.
18. Fajriyah, dkk. Gambaran Tingkat Pengetahuan Tentang Anemia Pada Remaja Putri. Jurnal Ilmiah Kesehatan, Vol.9, No. 1. 2016.