

# The effect of anemia educational videos on the knowledge and attitudes of adolescent girls at State Junior High School 4, West Aceh

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## Abstract

Anemia continues to pose a serious global health concern and is particularly widespread in developing countries such as Indonesia. Adolescent girls face a heightened risk of iron deficiency anemia due to menstrual blood loss, which leads to nearly double the iron depletion experienced by boys. Video-based educational interventions provide an accessible means of improving young people's knowledge and attitudes toward anemia prevention. This study examined the effect of animated educational videos on the knowledge and attitudes of adolescent girls regarding anemia. A total of 71 participants were involved, and data collection took place in June 2025 using a structured questionnaire assessing knowledge and attitudes toward anemia. Univariate and bivariate analyses were conducted, and the Wilcoxon test was applied to determine changes before and after the intervention. The results showed significant improvements in both knowledge and attitudes after participants viewed the animated video. These findings indicate that animated video education is an effective strategy for strengthening adolescents' understanding and fostering positive attitudes toward anemia prevention. Health workers are encouraged to expand the use of video-based health promotion to support anemia prevention initiatives among young people.

Keywords: Anemia, Attitude, Educational Video, Knowledge

## Abstrak

Anemia merupakan masalah kesehatan masyarakat yang masih banyak dijumpai di berbagai negara, terutama di negara berkembang seperti Indonesia. Remaja putri memiliki risiko lebih tinggi mengalami anemia defisiensi besi karena kehilangan darah saat menstruasi, sehingga kebutuhan dan kehilangan zat besi mereka lebih besar dibandingkan remaja laki-laki. Edukasi melalui media video menjadi salah satu strategi yang mudah diakses untuk meningkatkan pengetahuan dan sikap remaja terhadap pencegahan anemia. Penelitian ini bertujuan menganalisis pengaruh video edukasi animasi tentang anemia terhadap pengetahuan dan sikap remaja putri. Penelitian melibatkan 71 responden dan dilaksanakan pada Juni 2025. Data dikumpulkan menggunakan kuesioner terstruktur mengenai pengetahuan dan sikap remaja putri terhadap anemia. Analisis data dilakukan secara univariat dan bivariat dengan uji Wilcoxon untuk melihat perbedaan sebelum dan sesudah intervensi. Hasil penelitian menunjukkan adanya peningkatan signifikan pada pengetahuan dan sikap remaja putri setelah mendapatkan edukasi melalui video animasi. Temuan ini menunjukkan bahwa video edukasi animasi efektif dalam meningkatkan pemahaman dan sikap positif remaja putri mengenai pencegahan anemia. Tenaga kesehatan disarankan untuk memperluas penggunaan media video dalam promosi kesehatan guna mendukung upaya pencegahan anemia pada remaja.

Kata Kunci: Anemia, Sikap, Video Edukasi, Pengetahuan

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## 1. Introduction

Adolescence is a period of significant psychological and physical changes, as well as social expectations and perceptions, accompanied by physical growth and development, including sexual maturation. Growth in height and weight also occurs very rapidly during this period, often referred to as puberty. This condition affects nutritional needs, which are derived from daily food consumption. One nutritional problem often experienced by adolescents is iron deficiency anemia. This is especially true for adolescent girls, who are at higher risk of developing anemia than adolescent boys (Afina et al., 2021).

The World Health Organization (WHO) states that globally, the prevalence of anemia in women aged 15 years and above is 28%. Southeast Asia has the highest prevalence of anemia, at 42%. The prevalence of anemia in women aged 15 years and above in Indonesia is 23%, a figure higher than that of its closest neighboring country, Malaysia (21%). The prevalence of anemia among children aged 5-12 years in Indonesia is 26%, and among women aged 13-18, it is 23%. Meanwhile, the prevalence of anemia in the 15-24 age range, based on the 2018 Basic Health Research, is 32%. Moreover, in Aceh, the prevalence of anemia is 36.93%. This indicates that the prevalence of anemia continues to rise annually, and Aceh has a higher prevalence of anemia compared to the national average (Marfiah et al., 2023).

Anemia can be defined as a condition characterized by a low hemoglobin concentration in the blood. Low hemoglobin levels are caused by a lack of iron in the blood, which results in the blood being unable to support the function of delivering oxygen to all tissues, thus inhibiting growth and development. It can also damage brain cells or tissue, resulting in suboptimal physical work capacity and body temperature regulation. Normally, hemoglobin levels in the body range from 12 to 15 g/dL, but hemoglobin levels in women are generally lower than 12 g/dL because menstrual blood loss increases their risk of anemia. A diet that fails to meet the body's nutritional needs can also lead to a deficiency in essential substances, such as iron, which can result in anemia (Jaji & Natosba Jum, 2023).

Anemia in adolescent girls can have long-term consequences for both the girl and her unborn child. It is crucial to ensure that her iron needs are met now to achieve optimal growth. Anemia among adolescent girls can lead to various health problems, including reduced reproductive health, impaired motor and cognitive development, lower academic performance, and decreased physical fitness (Agestika, L., & Pratiwi, VA, 2023). Iron deficiency, or anemia, that persists into adulthood and into pregnancy can pose risks to the baby, including premature birth and low birth weight. The Indonesian government's efforts include administering iron supplements (TTD) to adolescent girls through health centers (UKS) in junior high and high school educational institutions or their equivalents (Azizah, APN et al, 2023).

The health of adolescent girls, both as future mothers and future generations, needs to be a primary concern. This also relates to the Sustainable Development Goals (SDGs), which still require significant effort to achieve, particularly in the area of maternal health. Adolescence, particularly among girls, is a pivotal stage in the life cycle, characterized by significant physical and emotional growth and development. Optimally managed, this process will result in healthy adolescent girls and, ultimately, healthy future mothers (Podungge et al., 2022). The government can make efforts to provide iron supplements through school health units and offer ongoing counseling,

aiming to increase young women's knowledge about anemia (Siregar, EDP et al, 2023).

Based on the initial survey conducted at State Junior High School 4 West Aceh by conducting direct interviews with 10 respondents, the results obtained were that four female students (40%) learned about anemia from social media, and six female students (60%) did not know and had never sought information about anemia. Based on this observed problem, the researcher was interested in conducting a study on the Influence of Anemia Educational Videos on the Knowledge and Attitudes of Young Women at State Junior High School 4, West Aceh, which aims to increase adolescent knowledge and attitudes about anemia.

## 2. Research Method

The research design used by the researcher is a quantitative study with a quasi-experimental one-group pretest-posttest design. This study was conducted with pretest observations before treatment and re-observations through posttests to assess changes in the knowledge and attitudes of adolescent girls regarding anemia prevention. This study was conducted in June 2025 at State Junior High School 4, West Aceh, with 71 respondents using a total sampling technique. The instrument used in this study was a questionnaire to measure the knowledge and attitudes of adolescent girls, and the data analysis employed was the Wilcoxon test.

## 3. Results and Discussion

### 3.1. Results

#### Univariate Analysis

Table 1. Frequency distribution of respondents'

Categories.		Frequency	%
Age Age (Years old)	11	9	12,7
	12	15	21,1
	13	20	28,2
	14	17	23,9
	15	10	14,1
Class	VII a	8	11,3
	VII b	8	11,3
	VII c	8	11,3
	VIII a	10	14,1
	VIII b	8	11,3
	VIII c	8	11,3
	IX a	7	9,9
	IX b	8	11,3
	IX c	6	8,3
Total		71	100

Based on Table 1, the majority of respondents were 13 years old, totaling 20 individuals (28.2%), while the smallest proportion was 11 years old, with 9 individuals (12.7%). The table also shows that most respondents came from class VIII A, with 10 students (14.1%), whereas the fewest were from class IX C, with 6 students (8.3%).

#### Pretest of adolescent knowledge

Table 2. Frequency distribution of knowledge before providing educational videos

No	Category	F	%	Mean	SD	Min	Max
1	Good	27	38,0	21,7	0,756	1	3
2	Moderate	29	40,8				
3	Poor	15	21,1				
Total		71	100				

Table 2 shows that the knowledge of adolescents about anemia before the provision of anemia education at State Junior High School 4 West Aceh was in the moderate category for 29 people (40.8%). The average value was 2.17, and the standard deviation was 0.756, with a minimum knowledge value of 1 and a maximum knowledge value of 3.

### Posttest of adolescent knowledge

Table 3. Frequency distribution of knowledge after providing educational videos

No	Category	F	%	Mean	SD	Min	Max
1	Good	67	94,4	2,94	0,232	2	3
2	Moderate	4	5,6				
3	Poor	0	0				
Total		71	100				

Table 3 shows that 67 adolescents (94.4%) had good knowledge about anemia after the education at State Junior High School 4, West Aceh. The average score was 2.94, with a standard deviation of 0.232, and a minimum knowledge score of 2 and a maximum knowledge score of 3.

### Pretest of adolescent attitudes

Table 4. Frequency distribution of attitudes before providing educational videos

No	Category	F	%	Mean	SD	Min	Max
1	Positive	34	47,9	1,52	0,503	1	2
2	Negative	37	52,1				
Total		71	100				

Table 4 shows that the attitude of adolescents about anemia before the provision of anemia education at State Junior High School 4 West Aceh was in the negative category for 37 people (52.1%). The average value was 1.52, and the standard deviation was 0.503, with a minimum knowledge value of 1 and a maximum knowledge value of 2.

### Posttest of adolescent attitudes

Table 5. Frequency distribution of attitudes after providing educational videos

No	Category	F	%	Mean	SD	Min	Max
1	Positive	56	78,9				
2	Negative	15	21,1	1,52	0,503	1	2
Total		71	100				

Table 5 shows that 56 adolescents (78.9%) had a positive attitude towards anemia after the education at State Junior High School 4 West Aceh. The average value was 1.52, with a standard deviation of 0.503, and a minimum knowledge score of 1 and a maximum knowledge score of 2.

### The influence of anemia educational videos on adolescent knowledge

Table 6. The influence of anemia educational videos on the knowledge

Knowledge	N	Meam	SD	Min	Max	Z(2-tailed)	Asymp.Sig
Pre	71	2,17	0,756	1	3	-5,654	0,000

Post	2,94	0,232	2	3
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The results of the study (Table 6) showed that adolescent knowledge about anemia before the provision of anemia education at State Junior High School 4 West Aceh was in the moderate category of 29 people (40.8%), and adolescent knowledge about anemia after the provision of anemia education at State Junior High School 4 West Aceh was in the good category of 67 people (94.4%). The results of this study indicate a significant difference before and after the educational intervention, using anemia animation videos, with a p-value of 0.000 ( $<0.05$ ), and a Z-value of -5.654. Based on the Z value, there is a strong and significant effect.

### The influence of anemia educational videos on adolescent attitudes

Table 7. The influence of anemia educational videos on the attitudes

Attitudes	N	Mean	SD	Min	Max	Z(2-tailed)	Asymp.Sig
Pre	71	2,17	0,503	1	3	-5,654	0,000
Post	71	2,94	0,411	2	3		

The results of the study (Table 7) showed that the attitudes of adolescents about anemia before the provision of anemia education at State Junior High School 4 West Aceh were in the negative category of 37 people (52.1%), and the attitudes of adolescents about anemia after the provision of anemia education at State Junior High School 4 West Aceh were in the positive category of 56 people (78.9%). The results of this study indicate a significant difference before and after the educational intervention, using anemia animation videos, with a p-value of 0.000 ( $<0.05$ ), and a Z-value of -3.773. Based on the Z value, there is a very large influence.

### 3.2. Discussion

According to Notoatmojo (2021), education is a planned effort to influence others, whether individuals, groups, or young women in general, so that they can do what the educator expects of them. The expected outcome of promotion is behavior that increases knowledge. While knowledge is the result of "knowing," and this occurs after a person senses a particular object. Sensing occurs through the senses of sight, hearing, smell, and taste. Most human knowledge is acquired through the senses of sight and hearing. Knowledge, or cognitive, is a crucial domain for shaping one's actions (Sulistyawati & Nurjanah, 2018). One thing young women should be aware of is anemia. Anemia is a medical condition characterized by a deficiency in the number of red blood cells or normal hemoglobin levels, which can differ between men and women. For men, anemia is defined as a hemoglobin level of less than 13.5 grams/100 mL, and for women, a hemoglobin level of less than 12.0 grams/100 mL (Sulistyawati & Nurjanah, 2018).

The study by Fadhilah et al. (2022) showed that the pre-test and post-test experienced a significant increase, with a value of  $p < 0.05$ . The average increase in knowledge about anemia was obtained from the pre-test results of 16.6 and the post-test value of 18.8. There was an increase in knowledge among adolescent girls regarding anemia after receiving nutritional education compared to before. This can be seen from the results of the average pre-test and post-test scores, which experienced an increase. Following the education, a post-test was conducted to assess the knowledge of adolescent girls at State Junior High School 4 West Aceh after an intervention in the form of an educational video. Information absorption is more effective when utilizing the senses of sight and hearing through the use of animated



videos. The increase in knowledge is influenced by the presence of media assistance that makes it easier for respondents to remember the material provided.

Researchers believe that anemia education through animated videos is very helpful for adolescent girls to understand the importance of anemia prevention easily. This is because animated videos provide clearer and more concise information, making the content more engaging and less boring to watch. Furthermore, in this digital era, it is very easy for adolescents to repeatedly watch educational videos about anemia on their smartphones at home. This makes it easier to recall information about anemia prevention that has been forgotten. The use of videos about anemia can clarify the abstract concept of the importance of anemia prevention in adolescents, as the educational process allows respondents not only to hear the material being presented but also to directly and clearly see the benefits and risks of anemia (Dwiningrum, Y., & Risca Fauzia, F, 2022).

Attitude is a person's mental reaction to a tangible visualization they see. Attitudes are internal emotions and do not yet manifest in concrete, overt behavior. Education through video can improve adolescent girls' attitudes about anemia due to several advantages (Swarjana Ketut, 2020).

Video media engages more than one of the five senses, making it easier for respondents to remember. Furthermore, the simultaneous use of multiple senses also influences the decision-making process in the human brain (Farhan et al., 2024).

Before the intervention, adolescent girls' attitudes towards anemia were similar, with 50% positive and 50% negative. This indicates that before the education, respondents had a balanced positive and negative attitude towards anemia. After the education, a post-test was conducted to assess the attitudes of adolescent girls at State Junior High School 4 West Aceh, after the intervention in the form of an educational video. Information absorption was more effective when using the senses of sight and hearing through animated videos. Improved attitudes towards anemia were influenced by the use of media assistance, which made it easier for respondents to recall the provided material.

Researchers believe that anemia education through animated videos is very helpful for adolescent girls to understand the importance of anemia prevention easily. This is because animated videos provide information clearly and concisely, making it less boring to watch. Furthermore, in this digital era, it is very easy for adolescents to repeatedly watch educational videos about anemia on their smartphones at home. This makes it easier to recall when things are forgotten, such as attitudes that can prevent anemia. The use of videos about anemia can clarify the abstract concept of the importance of anemia prevention in adolescents, as the educational process allows respondents to not only hear the material being presented but also see the benefits and risks of anemia directly and clearly. To help teenagers develop a better attitude towards preventing anemia (Turnip, M., & Arisman, Y, 2022).

#### **4. Conclusion**

After receiving the anemia educational video intervention, most respondents showed good knowledge, reflecting a clear improvement compared with their initial understanding. The findings indicate that the animated video successfully enhanced adolescents' awareness and comprehension of anemia and its prevention. Overall, the educational video proved effective as a learning medium for increasing adolescents' knowledge and supporting better health awareness.

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