

## Health Education Using Booklet to Increase Knowledge on Anemia among Adolescent Girls

Endah Yulianingsih, Febri Dwi Yanti\*, Dinda Hulawa

Poltekkes Kemenkes Gorontalo, Gorontalo, Indonesia

### ARTICLE INFORMATION

Received: 25, January, 2023

Revised: 12, April, 2023

Accepted: 18, April, 2023

### KEYWORDS

Anemia; Booklet; Knowledge; Young Women

*Anemia; Booklet; Pengetahuan; Remaja Putri*

### CORRESPONDING AUTHOR

Febri Dwi Yanti

Jl, Raja Eyato, Kel, Buladu, Kec. Kota Barat, Kota Gorontalo

[febridwiyanti0293@gmail.com](mailto:febridwiyanti0293@gmail.com)

+6282130314227

### DOI

<https://doi.org/10.36456/embrio.v15i1.6829>

### ABSTRACT

Iron deficiency is one of the healthful issues in Asia, remembering for Indonesia. Young women often consume risky foods such as fast food, snacks and soft drinks. Such condition is due to lack of education among adolescent girls. This study aims to determine the effect of health education using booklet media on the increase in knowledge on anemia among adolescent girls. This was a pre-experimental study with a One-Group Pre-Test-Post Test Design approach. The population involved in this study was adolescent girls in State JHS of Gorontalo City, with a total sample of 132 respondents. The samples were selected using the Simple Random Sampling technique. Data on knowledge were derived from questionnaires that had been tested for validity and reliability. The study was conducted in February to March 2021. Data analysis was performed using the Wilcoxon test. The results showed that there was an effect of health education using booklet media on the increase in knowledge on anemia among adolescent girls with  $p$ -value = 0.000. It is expected that healthcare workers can provide health services in the form of education to young women using booklet media so that adolescents are interested in listening to information and the information can be easily understood.

*Anemia merupakan salah satu masalah gizi utama di Asia termasuk di Indonesia. Remaja putri sering mengkonsumsi makanan berisiko seperti fast food, snack dan soft drink, hal ini terjadi karena kurangnya edukasi pada remaja putri. Tujuan penelitian ini adalah untuk mengetahui pengaruh pemberian edukasi menggunakan media booklet terhadap peningkatan pengetahuan pada remaja putri tentang anemia. Penelitian ini yaitu penelitian pre-eksperimen dengan pendekatan One-Group Pre-Test-Post Test Design. Populasi pada penelitian ini adalah remaja putri di SMP Kota Gorontalo, dengan jumlah sampel sebanyak 132 orang. Sampel yang didapat dengan menggunakan teknik Simple Random Sampling. Data pengetahuan didapat dari kuesioner yang telah diuji validitas dan reliabilitas. Penelitian dimulai pada bulan Februari sampai Maret 2021. Analisis data dilakukan dengan uji Wilcoxon. Hasil penelitian terdapat pengaruh pemberian edukasi menggunakan media booklet terhadap peningkatan pengetahuan pada remaja putri dengan nilai  $p$ -value = 0,000. Dari hasil penelitian ini diharapkan tenaga kesehatan dapat memberikan pelayanan kesehatan seperti edukasi pada remaja putri menggunakan media sehingga remaja tertarik dalam mendengarkan informasi dan mudah dipahami oleh remaja putri.*

© 2023 The Author(s)

## Introduction

Iron deficiency (Fe) is one of the healthful issues in Asia, remembering for Indonesia. Southeast Asia occupies the highest prevalence of anemia among children by 60% (Khobibah et al., 2021; Kusnawati & Rokhanawati, 2016; Sari et al., 2022).

According to the World Health Organization (WHO) cited in a study conducted by Kurniati (2010), the incidence of anemia in developing countries was about 53.7% of adolescent girls. Anemia often attacks adolescent girls due to stress, menstruation, or late eating. The rate of iron deficiency anemia in Indonesia was 72.3%. Iron deficiency in adolescents results in paleness, weakness, fatigue, dizziness, and decreased concentration on learning (Kurniati, 2020). The causes of anemia among adolescent girls include the level of parental education, economic level, level of knowledge about anemia, poor Fe intake, vitamin C, and duration of menstruation. The number of adolescents (10-19 years) in Indonesia was 26.2% consisting of 50.9% men and 49.1% women. (Afa, 2017; Suryadinata et al., 2022)

Girls in adolescence are more likely to have anemia than adolescent boys since adolescent girls have monthly menstrual cycles and wrong eating habits such as eating fast food, snacks and soft drinks. In addition, there is a high desire of adolescent girls to look slimmer like Princess which can lead to poor intake of nutritious food including sources of Fe (Febria & Kurniasari, 2022; Mufa, 2021). Anemia has a devastating impact on adolescent girls because it can cause delayed physical growth as well as behavioral and emotional disorders (Khoirunisa dan Nugraheni, 2017).

Knowledge will have an effect on most adolescent girls aged 11-18 years who had junior and senior high school education. Therefore, the possibility of having good knowing on anemia is quite a lot, especially from the sources of information such as subject materials and mass media for a higher access to information. Poor knowledge of anemia will result in a lack of consumption of animal protein source foods (Imanuna et al., 2020; Kusuma, 2022; Nasruddin et al., 2021).

Basic Health Research data (2020) revealed that the prevalence of anemia among Women of Childbearing Age (15 years and over) was 22.7%, while in pregnant women it was 37.1%. According to the Central Statistics Agency of Gorontalo Province, there were 54,885 adolescents aged 10-14 years and 56,140 adolescents aged 15-19 years (Basic Health Research, 2020).

Based on the results of a survey conducted by researchers, there were 313 junior high school students had anemia. This is due to the lack of knowledge on anemia among adolescents. Furthermore, based on the interview with several adolescents, many of them consumed ready-to-eat food and rarely consumed vegetables. This situation needs to be considered due to the enormous impact of anemia which can decrease the quality of human resources. Thus, it is better to overcome anemia early before pregnancy, so that the physical condition of adolescents is ready to become a healthy mother (Gorontalo Province Health Office, 2020). This study aims to determine the effect of health education using booklet media on the increase in knowledge on anemia among adolescent girls.

## **Methods**

This was a Pre-Experimental study with One-Group Pre Test-Post Test design. The population in this study was the VII graders of State JHS of Gorontalo City in the 2021/2022 school year, with a total sample of 132 respondents. The samples were selected using the Simple Random Sampling technique. Data on knowledge were derived from questionnaires that had been tested for validity and reliability.

The  $r$  value of the Corrected item-Total Correlation was higher than the  $r$  table value ( $r=0.514$ ). The study was conducted in February to March 2021. At the initial stage, respondents filled out questionnaires (pre-test) and were given booklets containing material on anemia, including causes of anemia, signs and symptoms of anemia, and how to prevent anemia. The further stage was to fill out the same questionnaires (post-test). This study has been approved by the Research Ethics Committee, Gorontalo Health Polytechnic No. LB.01/KEPK/22/2020. Data analysis was performed using the Wilcoxon test since the data were non-parametric or not normally distributed.

## Results

**Table 1.** Distribution of Respondents by Age

Age	Sum	Presentation
10-12 years	88	67
13-15 years	44	33
16-19 years	0	0
Total	132	100

The table above showed that most of respondents were in the age range of 10-12 years as many as 88 respondents (67%).

**Table 2.** Distribution of Respondents by the Level of Knowledge Before and After Intervention

Knowledge	Before	Presentation	After	Presentation
Good 76-100	13	10	132	100
Moderate 56-75	53	40	0	0
Poor <55	66	60	0	0
Total	132	100	132	100

Based on the data in the table above, it was shown that before being given a booklet on anemia, most of respondents had poor knowledge as many as 66 respondents (60%) and a small part of respondents had good knowledge as many as 13 respondents (10%). After being given a booklet on anemia, there was an increase in the level of knowledge of all respondents, wherein 132 respondents had good knowledge (100%).

**Table 3.** Wilcoxon Test

Knowledge	Pre-test		Post-test		Sig. (2 tailed)
	N	%	N	%	
Good	13	10	132	100	0.000
Moderate	53	40	0	0	
Poor	66	60	0	0	
Total	132	100	132	100	

Based on the table above, Wilcoxon statistical test obtained *sig* value of  $0.000 < 0.05$ , which indicated the effect of booklet on the increase in the level of knowledge.

## Discussion

The increase in the incidence of anemia among adolescent girls is partly due to the lack of education about balanced nutritional intake (Yanti et al., 2022). Anemia in adolescents can negatively affect performance and cognitive growth in adolescents, which can lead to a risk for anemia during pregnancy. This will undoubtedly have a negative effect on the fetus's growth and development inside the uterus, and it may also result in a number of problems during pregnancy and childbirth. Therefore,

such problem requires appropriate prevention and treatment right on target (Imanuna et al., 2020; Kusuma, 2022; Nasruddin et al., 2021).

Education is a process that can change behavior so that a person can implement good eating habits in daily life so that it can help prevent or manage anemia among adolescents. According to WHO, nutritional education aims to encourage a person to behave positively towards the food and nutrition he or she will consume (Ariyanti et al., 2018; Rusdi et al., 2021; Sulistiani et al., 2021; Syaiful et al., 2022).

Health education can use audiovisual media with elements of sound and images. It is usually expected that information that can reach the wider community. Booklet media can be used as a means of information containing an issue, and can also be used as reference material about prevention and management of anemia, supplementation of iron tablets, as well as MMR/NMR. Intervention to change attitudes and behavior using interesting media is expected to change people's knowledge and attitudes so that anemia can be prevented (Muyassaroh et al., 2020).

Education on the prevention of anemia among adolescent girls using the combination of lectures and Teams Games Tournament (TGT) methods could increase knowledge by 36.1%. The combined method of lectures and TGT was effective for nutrition education activities. The lecture method was chosen because the method is effectively used as an extension method with a fairly large number of participants (Sulistiani et al., 2021).

One factor of the high incidence of anemia is the lack of knowledge on anemia. Knowledge is an important role in the incidence of anemia. Based on the results of survey that has been conducted, there was a need for health education or in the form of counseling and socialization to increase adolescent knowledge on anemia since there were still many adolescent girls who did not know about anemia as well as its prevention and treatment (Safitri, 2022).

Anemia has a devastating impact on adolescent girls that can lead to delayed physical growth and interfere with behavior and emotional. Some of the signs of anemia are lethargy, weakness, fatigue and neglect (5L), frequent complaints of dizziness and firefly eyes. Further symptoms of anemia pale eyelids, lips, tongue, skin and palms. Furthermore, side effects of iron deficiency anemia are low productivity, inhibition of mental development and intelligence, decreased immune system, and morbidity (Gifari et al., 2020).

Development of media regarding nutritional education is very important to be carried out on an ongoing basis considering that adolescents as a vulnerable and unstable group still need interesting, interactive and renewable information (Az-zahra & Kurniasari, 2022; Murdiningrum & Handayani, 2021). In this case, there should be continuous efforts to overcome anemia with the aim of breaking the chain of stunting and malnutrition. Adolescent girls who will become mothers in the future are a major concern. Adolescent girls who grow up healthy according to their developmental age can definitely produce a healthy young generation (Kartiningrum et al., 2022).

Booklet is very suitable to be used in the learning process since it is easy to read anywhere, involves concise and easy-to-understand words, and contains interesting images so that the explanation is very easy for adolescents to understand (Putri, 2020).

## Conclusions

It can be concluded that there was an effect of health education using booklet media on the increase in knowledge on anemia among adolescent girls with  $p\text{-value}=0.000$ . It is expected that healthcare workers can provide health services in the form of education to young women using booklet media so that adolescents are interested in listening to information and the information can be easily understood.

## References

- Afa, N. I. K. H. L. J. R. (2017). *JURNAL ILMIAH MAHASISWA KESEHATAN MASYARAKAT VOL. 2/NO.6/May 2017; ISSN 250-731X*, 2(6), 1–10.
- Ariyanti, N. A., Sulistiastutik, & Suwita. (2018). Edukasi, Tingkat Pengetahuan, Tingkat Konsumsi Zat Gizi dan Kadar Hemoglobin Anak Sekolah Dasar. *Jurnal Informasi Kesehatan Indonesia*, 4(1), 33–42.
- Az-zahra, K., & Kurniasari, R. (2022). Efektivitas Pemberian Media Edukasi Gizi yang Menarik dan Inovatif terhadap Pencegahan Anemia kepada Remaja Putri : Literature Review. *Media Publikasi Promosi Kesehatan Indonesia (MPPKI)*, 5(6), 618–627. <https://doi.org/10.56338/mppki.v5i6.2293>
- Gorontalo Province Health Office. (2020). *Gorontalo Province Health Office Data*.
- Febria, M. A., & Kurniasari, R. (2022). *Penggunaan Media Kreatif Sebagai Sarana Edukasi Anemia Remaja Putri Selama Pembelajaran Jarak Jauh: Literature Review*. 5(8), 882–889.
- Gifari, N., Nuzrina, R., Ronitawati, P., Sitoayu, L., & Kuswari, M. (2020). Edukasi Gizi Seimbang Dan Aktivitas Fisik Dalam Upaya Pencegahan Obesitas Remaja. *JMM (Jurnal Masyarakat Mandiri)*, 4(1), 55. <https://doi.org/10.31764/jmm.v4i1.1749>
- Imanuna, H., Aroni, H., & Fajar, I. (2020). Penyuluhan Anemia Gizi Besi Menggunakan Media Booklet untuk Meningkatkan Pengetahuan dan Sikap Siswi SMAN 7 Malang. *Jurnal Nutriture*, 1(1), 1–8.
- Kartiningrum, E. D., Suhartanti, I., Sudiyanto, H., & Faruk, U. (2022). Upaya Pencegahan Anemia Pada Anak Perempuan di SDN Jabon 2 Kabupaten Mojokerto. *Abdimakes*, 2(2), 8–20.
- Khobibah, K., Nurhidayati, T., Ruspita, M., & Astyandini, B. (2021). Anemia Remaja Dan Kesehatan Reproduksi. *Jurnal Pengabdian Masyarakat Kebidanan*, 3(2), 11. <https://doi.org/10.26714/jpmk.v3i2.7855>
- Khoirunisa Triavi Sefaya, S.A Nugraheni, D. R. (2017). Pengaruh Pendidikan Gizi Terhadap Pengetahuan Gizi dan Tingkat Kecukupan Gizi Terkait Pencegahan Anemia. *Kesehatan Masyarakat*, 5(1). <https://doi.org/10.1017/CBO9781107415324.004>
- Kurniati, I. (2020). Anemia Defisiensi Zat Besi ( Fe ). *Jurnal Kedokteran Universitas Lampung*, 4(1), 18–33.
- Kusnawati, I. I., & Rokhanawati, D. (2016). *Kebiasaan minum tablet fe saat menstruasi dengan kejadian anemia pada siswi kelas xi di sma muhammadiyah 7 yogyakarta tahun 2016*.
- Kusuma, T. U. (2022). Peran Edukasi Gizi Dalam Pencegahan Anemia Pada Remaja Di Indonesia: Literature Review. *Jurnal Surya Muda*, 4(1), 61–78. <https://doi.org/10.38102/jsm.v4i1.162>
- Mufa, N. A. (2021). Pola Makan Dan Gejala Anemia Pada Mahasiswa Perantauan Di Universitas Samudra. *Jurnal Jeumpa*, 7(2), 458–461. <https://doi.org/10.33059/jj.v7i2.3796>
- Murdiningrum, S., & Handayani, H. (2021). Efektifitas Media Edukasi Gizi Untuk Peningkatan Pengetahuan Gizi Remaja. *Jurnal Mahasiswa BK An-Nur : Berbeda, Bermakna, Mulia*, 7(3), 53. <https://doi.org/10.31602/jmbkan.v7i3.5759>

- Muyassaroh, Y., Isharyanti<sup>2</sup>, S., Semarang, P. K., Semarang, J., & Tengah, I. (2020). Pengaruh Media Audiovisual Dan Booklet “Secantik Tami” (Sehat Dan Cantik Tanpa Anemia) Terhadap Pengetahuan Dan Sikap Remaja Tentang Anemia Premarital The Influence Of Audiovisual Media And Booklet Of “Secantik Tami” (Sehat Dan Cantik Tanpa Anemia)" On Ad. *Jurnal Kesehatan Madani Medika*, 11(02), 129–138.
- Nasruddin, H., Syamsu, R. F., & Permatasari, D. (2021). Angka Kejadian Anemia Pada Remaja Di Indonesia. *Journal Ilmiah Indonesia CERDIKIA*, 1(April), 357–364.
- Putri, N. M. (2020). Pengembangan Booklet Sebagai Media Pembelajaran Pada Mata Pelajaran Pengelolaan Bisnis Ritel Materi Perlindungan Konsumen Kelas Xi Bdp Di Smkn Mojoagung. *Jurnal Pendidikan Tata Niaga (JPTN)*, 8(3), 925–931.
- Riskesdas. (2020). *BPS. Prov. Gto.*
- Rusdi, F. Y., Helmizar, H., & Rahmy, H. A. (2021). Pengaruh Edukasi Gizi Menggunakan Instagram Terhadap Perubahan Perilaku Gizi Seimbang Untuk Pencegahan Anemia Pada Remaja Putri Di Sman 2 Padang. *Journal of Nutrition College*, 10(1), 31–38. <https://doi.org/10.14710/jnc.v10i1.29271>
- Safitri. (2022). *Relationship between Knowledge and Covid-19 Preventive Measures among Pregnant Women*. 14(2), 126–133.
- Sari, N. N., Setyobudi, S. I., & Tapriadi. (2022). *Pengaruh Edukasi Gizi Mengenai Anemia Dengan Media Video Terhadap Pengetahuan Dan Sikap Remaja Putri Di SMAN 1 Nganjuk*. 1(2), 43–51. <https://doi.org/10.14341/pmpe-2022-10>
- Sulistiani, R. P., Rizky Fitriyanti, A., & Dewi, L. (2021). Pengaruh Edukasi Pencegahan Anemia Dengan Metode Kombinasi Ceramah Dan Team Game Tournament Pada Remaja Putri. *Sport and Nutrition Journal*, 3(1), 39–47.
- Suryadinata, P. Y. A., Suega, K., Wayan, I., & Dharmayuda, T. G. (2022). Faktor Risiko Yang Mempengaruhi Kejadian Anemia Defisiensi Besi: A Systematic Review. *Jurnal Medika Udayana*, 11(2), 6–12.
- Syaiful, Y., Fatmawati, L., & Prihastuti, S. (2022). *Pendidikan Kesehatan Melalui Media Video dan Komik untuk Pencegahan Anemia pada Remaja Putri*. 5(1), 53–59.
- Yanti, F. D., Olii, N., Tompunuh, M. M., Z, S. N., Abdul, N. A., & Luawo, H. P. (2022). *Mencegah Anemia Pada Remaja Putri*. 6(2), 1–3.