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Effectiveness of video versus leaflet education on anemia prevention knowledge among young women: A comparative study

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ABSTRACT

Iron deficiency Anemia is a national health problem that is associated with nutritional problems. Knowledge of anemia in adolescents is very necessary as a way of habituating the consumption of Fe tablets with one's own awareness. Through attractive health promotion media, adolescents will increase their health awareness. Researchers want to aim to determine the difference in the effectiveness of education through video and leaflet media on the level of knowledge of young women about the prevention of anemia in the city of Banjarmasin. This study uses a type of quantitative research with a quasi-experiment design with a pretest-posttest approach and a non-equivalent control group design with a pretest and posttest. The sampling technique is total sampling. The statistical analysis used a paired t-test to determine the level of knowledge of adolescent girls about anemia and an independent t-test to determine the difference in the effectiveness of education through video and leaflet media on adolescent girls' knowledge about anemia. The provision of education with video and leaflet media on young women's knowledge about anemia prevention showed no significant difference. The results of this study indicate that the provision of education through leaflet media is slightly more effective than the provision of education through video media.

1. Introduction

Adolescents are at high risk of anemia because adolescents experience rapid growth accompanied by hormonal changes before entering the adult phase. Globally, as many as 31.2% of women suffer from anemia in 2021, where the prevalence of anemia in women of the reproductive period aged 15-49 years is as much as 33.7% (IHME, 2023). Iron deficiency-anemia is a national health problem associated with nutritional problems (Mansyur, 2019). Anemia in Indonesia among women of childbearing age (15–49 years) increased from 21.6% in 2018 to 22.3% in 2019 (Sari et al., 2022). Based on data from the Banjarmasin City Health Office in 2018, there were 924 cases of anemia, with cases in teenage girls aged 10–19 years as many as 884 cases (Abreha et al., 2020). The problem of anemia and malnutrition in pregnant women is still the focus of attention, which is a risk factor for stunting, premature birth, and low birth weight due to a lack of nutrition in adolescence, so strategic efforts are needed starting from pre-pregnancy to realize a healthy generation (Martini, 2021). Based on the results of the nutritional status survey in Indonesia in 2022, 24.6% of stunting was obtained in South Kalimantan (Indonesian Ministry of Health, 2022). The impact of this anemia is in the form of decreased immunity, concentration, learning achievement, adolescent fitness, and productivity (Kejel et al., 2020). So it takes knowledge about nutrition that plays an important role in fulfilling a person's nutritional adequacy. Through attractive health promotion media, adolescents will increase their

health awareness. Learning media is a tool or complement that can be used to help facilitate, clarify, and convey concepts, ideas, understandings, or subject matter in teaching and learning activities both outside and inside the classroom regarding anemia education (Abreha et al., 2020). There was an effect of health education on the level of adolescent knowledge about anemia (p-value =.011), so young women can find out what conditions they experience when they are anemic due to menstruation (Ishak et al., 2021). Nowadays, teenagers prefer health education media that are technologically advanced, such as audiovisual approaches in the form of animated videos with unique and interesting characters (Nuraeni et al., 2018). However, leaflet media is also a form of health promotion by delivering information or health messages through sheets that contain information that can be seen in the form of sentences, images, or combinations that have been modified so that they can become a special attraction for readers and can be stored and read repeatedly (Andriani & Suhrawardi, 2022).

Researchers want to examine more deeply the difference in the effectiveness of education through video and leaflet media on the level of knowledge of young women about anemia prevention in Bangladesh. This research will be conducted on adolescent girls in high school in Banjarmasin. The general objective is to analyze the difference in the effectiveness of education through video and leaflet media on the level of knowledge of adolescent girls about anemia prevention. This study aims to identify differences in the effectiveness of video media and leaflet media on the level of knowledge of young women about anemia prevention.

2. Methods

This study uses a type of quantitative research with a quasi-experiment design with a pretest-posttest approach and a and a non-equivalent control group design, which is a design that provides a pretest before treatment and a posttest after treatment in each group. Research location: Banjarmasin City, South Kalimantan. The samples in this study were young women in High School Class X, as many as 30 people (15 intervention groups video and 15 intervention groups leaflet). The inclusion criteria in this study were adolescent girls who were in grades 10 or equivalent and willing to participate in the study by signing an informed consent. The exclusion criteria were adolescent girls who were not present during the pretest and posttest questionnaire sessions. The instrument in this study used a knowledge questionnaire adopted from (Mansyur et al., 2019; Warner & Kamran, 2023) with 15 questions. The implementation phase begins with respondents being asked for approval before filling out the questionnaire, then pretest data collection is carried out by providing questionnaires through Gform to respondents, then respondents are divided into two groups by being given interventions through videos and intervention groups through leaflets. The next activity is carried out through a questionnaire containing the same questions as the pretest, to be filled out by the respondent. Data normality test using the Shapiro Wilk test to see the normality of the data. After the normal distributed data was found, parametric analysis with a paired sample t test was used to analyze the difference in the effectiveness of education through video and leaflet media in adolescent girls about anemia prevention, and an independent t test was used to assess the difference in the value of knowledge in the 2 groups given treatment (video and leaflet). An ethical feasibility test has been conducted at the Ethics Committee of the Institute of Development and Community Service (LP3M) at FKIK Muhammadiyah University of Banjarmasin.

3. Results/Findings

The following is an overview of the level of knowledge of young women about anemia prevention before and after being given educational treatment with video:

Table 1. Young women's knowledge about Anemia prevention before and after treatment

Explanation	Video		Leaflet	
	Knowledge Score		Knowledge Score	
	Before	***After***	***Before***	***After***
n	15	15	15	15
Minimum	5	9	4	8
Maksimum	12	13	13	14
Mean	9.87	11.20	9.20	11.67

The table above shows that of the 15 respondents in the video group before being given treatment, it is known that the minimum value of respondents is 5 and the maximum value of respondents before being given treatment is 12, with the average value of adolescent knowledge in the video group before treatment being 9.87. While in the video group after treatment, it is known that the minimum value of respondents is 9 and the maximum value of respondents after treatment is 13, with the average value of adolescent knowledge in the video group after treatment being 11.20. Respondents in the leaflet group before being given treatment: it is known that the minimum value of respondents is 4 and the maximum value of respondents before being given treatment is 13, with the average value of adolescent knowledge in the leaflet group before treatment being 9.20. While in the leaflet group after treatment, it is known that the minimum value of respondents is 8 and the maximum value of respondents after treatment is 14, with the average value of knowledge of adolescents in the in the leaflet group after treatment being 11.67.

In this study, a paired sample t-test was used to determine the effectiveness of education through leaflets and videos on the knowledge of young women about anemia prevention, as shown in the following table:

Table 2. Test Paired Sample T-Test Knowledge Of Young Women Before And After Education

Group	Intervention	n	Mean	Mean Deviation	SD	Sig.
Video	Pretest	15	9.87	1.33	1.846	0.036
	Posttest	15	11.20		1.521	
Leaflet	Pretest	15	9.20	2.47	2.731	0.000
	Posttest	15	11.67		1.759	

The table above shows that the results of the paired sample t-test in the video group obtained the value of the mean difference between before and after treatment of 1.33 and obtained a Sig value of 0.036 < 0.05, indicating that there is an effect of providing education with video media on adolescent girls.

The table above shows that the test results of the paired sample t-test in the leaflet group obtained a mean difference of 2.47 between before and after treatment and a Sig value of 0.000 < 0.05, indicating that there is an effect of providing education with leaflet media on adolescent girls. Then, an independent t-test is used to see the difference in the effectiveness of education through video and leaflet media on the knowledge of young women about anemia prevention, as shown in the following table:

Table 3. Independent T-Test Of Young Women's Knowledge After Education With Leaflet And Video Media

Group	n	Mean	Mean Deviation	SD	Sig.
Post Leaflet	15	11.67	0.467	1.759	0.422
Post Video	15	11.20		1.521	

The table above shows that, according to the results of the independent t-test, the average value of knowledge of young women in the leaflet group after being given education is 11.67, and the average value of knowledge of young women in the video group after being given education is 11.20. The mean difference value in the leaflet and video group is 0,467, with a GIS value of 0,422 > 0,05. So it can be concluded that the provision of education with leaflets and video media about the knowledge of young women about the prevention of anemia showed no significant difference.

4. Discussion

There was an increase in knowledge after being given education using video media, with a good level of knowledge of as much as 46.6%. Based on the results of (Fatimah et al., 2023) the cause of this sufficient level of adolescent knowledge could be that adolescents do not receive material about anemia either from teachers or from adolescent posyandu activities. The use of educational media can affect adolescents' acceptance of knowledge that is conveyed. According to (Fatimah et al., 2023) in a person who is exposed to information on a given topic will have more knowledge than one who is not exposed to information. Health promotion in schools in the form of counseling with appropriate promotional methods and media in its implementation and absorption is a strategic step in efforts to

improve the degree of public health (Wallace et al., 2018). Knowledge, attitudes, and practices to prevent anemia need to be continuously improved through appropriate media for adolescents. It is very important to make interventions more effective (Sari et al., 2022).

Provision of education using leaflets Media aims to provide information about a particular event or activity that has the advantage of being able to be stored for a long time and can be viewed again (Madestria et al., 2021). The results of this study showed that the level of knowledge of adolescent girls increased after treatment with educational media leaflets. This is in line with research conducted by Murtiyarini et al. (2019) on the effectiveness of health promotion media on adolescents' knowledge of maturing marital age in SMA N 9 Jambi City, namely, the knowledge of respondents before and after giving leaflet media increased with a p-value of 0.000 ($p<0.05$).

The treatment group with video education experienced an increase in knowledge after treatment. Video is a medium that uses audio and visual, which is an intermediary between the material and itself, so that it builds conditions that make adolescents able to acquire knowledge and skills. In line with the results of research conducted by (Sari et al., 2022) about the mobile-based smoking effect Video learning as a medium for anti-smoking Health Education said that the use of the video method "smoking effect learning" is quite effective; the learning media used can be accessed by various groups easily through mobile phones. Video is an intermediate medium whose material and absorption are achieved through sight and hearing so as to build conditions that can make students able to acquire knowledge and skills. The provision of information in the form of video playback was able to increase student knowledge, which had a positive impact on the attitude formed. Attitude changes are influenced by knowledge and trust factors obtained from sensing results, one of which is obtained in education and the learning process (Anjarwati & Ruqoiyah, 2020; Masrizal, 2007). The development of educational media for iron tablet intake through the video along with packaging modification of iron tablets had a significant effect on the knowledge, attitudes, and intentions of young women regarding iron supplementation intake.

The results of this study indicate that the provision of education using leaflet media is effective in increasing the knowledge of adolescent girls about the prevention of anemia. In line with research conducted by (Hartati & Wahyuni, 2018) which proves that leaflet media is more effective in increasing elementary school students' knowledge about the dangers of smoking than video, Leaflet media is used as a health education medium because, in this medium, the target can adjust and learn independently, users can see the contents while relaxing, information can be shared with family and friends, it can provide more detailed information about information that cannot be given orally, and it reduces the need to record. On the leaflet media, the message conveyed is clearly written and can be read repeatedly by students (Sirenden et al., 2018).

The results of this study found that the provision of education with leaflets and video media on the knowledge of young women about the prevention of anemia showed no significant difference. The results of this study indicate that the provision of education through leaflet media is slightly more effective than the provision of education through video media. Educational media videos and leaflets are tools in health education. The process of increasing knowledge cannot be separated from the health promotion media used. The purpose of other health education is to make health a business in the community, help individuals to be able to independently or in groups carry out activities to achieve healthy living goals, encourage development and use in a targeted manner, and encourage people to take positive steps in preventing illness, preventing the development of severe illness, and preventing infectious diseases. Methods and media with attractive packaging and sentences will affect the delivery of the message (Farre et al., 71 C.E.). Health promotion with leaflets and video media on adolescent knowledge shows that adolescent knowledge is sufficient and has a has a good attitude after receiving counseling (Ravens-Sieberer et al., 2021). The limitation of this study is that it only compares media education by video and leaflet in Banjarmasin City, South Kalimantan. In addition, schools and health workers should carry out evaluations of compliance monitoring for female students consuming additional tablets of blood, as well as provide understanding and motivation about the importance of consumption of blood-increasing tablets.

5. Conclusion

The results of this study showed that in the group given education through video, the average value before being given education was 9.87 and after being given education was 11.20. While in the leaflet

treatment group, the average value of adolescent knowledge before being given education is 9.20 and after being given education is 11.67. The effectiveness of providing education through video before and after education obtained a sig value of 0.036 < 0.05, indicating that there is an effect of providing education with video media on young women. Furthermore, the effectiveness of providing education through leaflets before and after education obtained a Sig value of 0.000 < 0.05, indicating that there is an effect of providing education with leaflet media on adolescent girls. The provision of education with video and leaflet media on young women's knowledge about anemia Prevention showed no significant difference, with Sig values of 0.422 > 0.05. The results of this study indicate that the provision of education through leaflet media is slightly more effective than the provision of education through video media.

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References

Abreha, S. K., Walelign, S. Z., & Zereyesus, Y. A. (2020). Associations between women's empowerment and children's health status in Ethiopia. *PLoS ONE*, *15*(7). https://doi.org/10.1371/journal.pone.0235825

Andriani, & Suhrawardi. (2022). The relationship between knowledge levels and attitudes of adolescents with premarital sexual behavior. *Journal of Research Innovation*, *2*(10), 3441–3446. https://stp-mataram.e-journal.id/JIP/article/view/1341

Anjarwati, A., & Ruqoiyah, S. (2020). Obedience of iron tablet consumption reduces risk of anemia among Indonesian female adolescents. *Journal of Health Technology Assessment in Midwifery*, *3*(1).

Farre, A. G., Pinheiro, P., & Vieira, N. (71 C.E.). *Adolescent health promotion based on community-centered arts education. Revista Brasileira de Enfermagem,*. *1*, 26–33.

Fatimah, Yusuf, Rizqiya, Revinel, & Permatasari. (2023). The Relationship of Knowledge and Attitude of Pregnant Mothers Anemia Trimester III with Compliance with Fe Tablet Consumption in Pasar Kemis Community Health Center, Tangerang Regency. *Jurnal Aisyah: Jurnal Ilmu Kesehatan*, *8*(2).

Hartati, & Wahyuni. (2018). *Socio-Economic Relationship with the Incidence of Anemia in Pregnant Women TM III at Jatinom Health Center*.

IHME. (2023). *The Lancet: New study reveals global anemia cases remain persistently high among women and children. Anemia rates decline for men*. https://www.healthdata.org/news-events/newsroom/news-releases/lancet-new-study-reveals-global-anemia-cases-remain-persistently#:~:text=One-fourth of the global,million cases over three decades.

Indonesian Ministry of Health. (2022). *Overview of Elderly Health in Indonesia. Indonesian Ministry of Health.*

Kejel, Wakgari, Tesfaye, Turi, Adugna, Alemu, & Jebessa. (2020). Prevalence Of Anemia And Its Associated Factors Among Pregnant Women Attending Antenatal Care Follow Up At Wollega University Referral Hospital, Western Ethiopia. *Contraception And Reproductive Medicine*, *5*(1), 26. https://doi.org/10.1186/S40834-020-00130-9

Madestria, N. P. O., Moedjiono, A. I., Suriah, Tahir, M., Masni, Suarayasa, K., Nur, R., & Syam, A. (2021). Effect of education through video and packaging modifications of iron tablets on female adolescent behavior in the iron supplementation intake in SMPN 2 and SMPN 1 Parigi. *Gaceta Sanitaria*, *35*, S127–S130. https://doi.org/10.1016/j.gaceta.2021.10.011

Mansyur. (2019). Textbook of Postpartum Midwifery Care. *Tuesday Media.*

Mansyur, Khoe, Karman, & Ilyas. (2019). Improving Workplace-Based Intervention in Indonesia to Prevent and Control Anemia. *Journal of Primary Care and Community Health*, *10*(1). https://doi.org/10.1177/2150132719854917

Martini. (2021). The Relationship of Anemia in Pregnancy Woman Trimester III with Neonatorum Asphician Events. *Jurnal Profesi Bidan Indonesia*, *1*(2), 1–9.

Masrizal. (2007). Anemia Defesiensi Besi, 2007. *Jurnal Kesehatan Masyarakat*, *1*(2). http://www.searchinpdf.com.

Nuraeni, Agustini, & Kurniawan. (2018). *Factors Associated with the Incidence of Anemia in Pregnant Women in the Work Area of the Cigasong Health Center UPTD in 2017*.

Ravens-Sieberer, U., Kaman, A., Erhart, M., Devine, J., Schlack, R., & Otto, C. (2021). Impact of the COVID-19 pandemic on quality of life and mental health in children and adolescents in Germany. *European Child and Adolescent Psychiatry*. https://doi.org/10.1007/s00787-021-01726-5

Sari, Herawati, Dhamayanti, & Hilmanto. (2022). Anemia among Adolescent Girls in West Java, Indonesia: Related Factors and Consequences on the Quality of Life. *Nutrients*, *14*(18), 1–12. https://doi.org/10.3390/nu14183777

Sirenden, Afni, & Ansar. (2018). *Risk Factors for Anemia in Pregnant Women at the Biromaru Public Health Center, Sigi Regency*.

Wallace, L. M., Ma, Y., Qian, L., & Dunn, O. M. (2018). Nurse Education in Practice Educational videos for practitioners attending Baby Friendly Hospital Initiative workshops supporting breastfeeding positioning , attachment and hand expression skills : E ff ects on knowledge and con fi dence. *Nurse Education in Practice*, *31*(April), 7–13. https://doi.org/10.1016/j.nepr.2018.04.005

Warner, & Kamran. (2023). Iron deficiency anemia. StatPearls Publishing LLC. *In NCBI*, *11*(4).