THE EFFECT OF PROVIDING EDUCATIONAL MEDIA ON ANEMIA AND NUTRITION ON THE PREVENTION OF ANEMIA IN YOUNG WOMEN IN BEKASI CITY

Regietta Neiva Fitriyah El-Mahmudiyah[1], Ratih Kurniasari[1]
[1] Undergraduate Program in Nutrition, Faculty of Health Sciences Universitas Singaperbangsa Karawang, Karawang
*E-mail: 1910631220026@student.unsika.ac.id

ABSTRACT

Adolescents need to pay attention to the fulfillment of their nutritional needs at this time because with this transition period there is an increase in the need for nutrients to support physical and psychological growth and development. One of the nutritional problems faced by adolescents is anemia. The prevalence of young women suffering from anemia in Bekasi City in 2020 is 26.4%. The purpose of this study was to determine the effect of providing educational media on anemia and nutrition on the prevention of anemia in young women in Bekasi City. This study was a pre-experimental study with pretest and posttest designs. The sample in this study was 60 young women who were divided into three groups with 20 young women in each group, each group had an intervention using different media, namely leaflet media, animated video, and QuizWhizzer game innovation media. The results of the paired t-test in the three groups showed a change in the increase in knowledge in each education group, with p-value in the leaflet group of 0.000, in the video animation group of 0.017, and the quiz whizzer game group of 0.012. Based on the results of this study, it can be concluded that the provision of educational media about anemia and nutrition has an influence on the prevention of anemia in young women.

Keywords: education, media, knowledge, anemia, women

INTRODUCTION

Adolescence is the transition period of a person from child to adult. Adolescence is a very important period because at this time there are many changes both biologically, psychologically and physically. Physical changes are very rapid growth (Adolescence Growth Spurt), which requires more nutrients. In addition to supporting physical growth and development, more nutrients are also needed for children's psychological growth and development. Ignorance of the fulfillment of these nutritional needs will result in various nutritional problems, such as undernutrition, overnutrition, and micronutrient deficiencies.

One of the nutritional problems faced by adolescents is anemia. Anemia is a condition where the hemoglobin (Hb) level in the blood is below the normal threshold (12 g/dL). Riskesdas 2013 data shows that the prevalence of anemia in WUS aged 15 years and over is 22.7%, while pregnant women are 37.1% (Ministry of Health, 2018). The World Health Organization (WHO) shows data on the prevalence of anemia in women of childbearing age in 2019 in Indonesia, which is 31.2%. Based on data from the Health Office (DHO) 2017, the proportion of adolescent anemia in Bekasi City was 26.4%. (Bekasi City Health Office, 2020). Young women have a greater risk of developing anemia than young men, because young women experience menstruation every month and are still in the growth stage so they need more iron intake. In addition, young women often diet to maintain or beautify their body shape so that they consume little food which results in their nutritional needs not being met. Young women are usually very concerned about body shape, so many limit food consumption such as on a vegetarian diet (Simanungkalit & Simarmata, 2019). In the short term, anemia will have a direct impact on young women, including 5L, often complaining of dizziness, foggy eyes, eyelids, lips, hands, and skin look pale. While in the long term anemia will have an impact on young women and other women of childbearing age (WUS) in the future because women will experience pregnancy and have children. Young women who experience anemia can be more severe during pregnancy because at that time they need more iron and if not treated it

 Received 14-05-2022, Accepted 19-05-2023, Published online 30-01-2024.

will have a negative impact on the fetus and the mother (Apriyanti, 2019).

Although anemia is known to be caused by iron deficiency in the body, vitamin B12 and folic acid deficiency can also cause anemia. Vitamin B12 and folic acid function in the formation of cell nucleus DNA and myelin formation. If vitamin B12 and folic acid are deficient in the body, it will cause disruption of DNA synthesis in the erythroblast nucleus so that the maturation of the nucleus is slower and the chromatin is looser resulting in cells becoming larger due to slow cell division called megaloblast cells which will later cause megaloblastic anemia (Kurniasari et al., 2018).

One of the government's solutions in overcoming and preventing anemia is by providing Blood Addition Tablets (TTD) to young women and pregnant women by the Puskesmas Office, in the form of 4 tablets consumed for 1 month, each 1 tablet consumed for 1 week (Putri et al., 2017). The Indonesian Ministry of Health created a program called PPAGB (Prevention of Iron Nutrition Anemia) and has been implemented in Bekasi City since 2010 until now with previous updates to the procedure for taking blood supplement tablets in 2016 to prevent anemia in young women or schoolgirls in schools (Murnariswari, 2021). However, TTD consumption in young women is known to be low. According to the 2018 Riskesdas, the percentage of young women who consumed TTD >52 items was only 1.4%. This low TTD consumption can be due to the fact that not all schools have implemented the PPAGB program and there are still many female students who do not want to take TTD because they have low knowledge about anemia.

Providing education to young women can be another alternative in preventing anemia. Providing education must be interesting so that it can generate interest and interest in young women. According to Marfuah et al. (2016), education provided to young women affects the motivation of young women to consume iron, especially during menstruation to prevent anemia. The education provided can be in the form of knowledge about anemia and nutrition with the benefit that young women understand about anemia and a healthy diet and lifestyle in everyday life.

Providing education can be done with various media as tools, such as leaflets, animated videos, and games. This is because providing education using these media is more attractive to young women because it is easier to learn and understand, and interesting. In addition, using these media makes it easier for young women to access the education provided through their cellphones without the need to carry a lot of items. The use of media in providing education can help the information provided to be conveyed better and easier to understand. Based on the description above, the purpose of this study is to determine the effect of providing educational media on anemia and nutrition on the prevention of anemia in young women in Bekasi City.

METHOD

This research is a pre experimental research with pretest and posttest design. This research was conducted by providing online-based education to young women in Bekasi City which was carried out in April 2022. The sample in this study amounted to 60 young women who were divided into three groups with each group totaling 20 young women. The sample was divided into three intervention groups and given three different educational media, namely 2-dimensional leaflet educational media, 3-dimensional animated video educational media, and QuizWhizzer game innovation media. The three media were used because they were easy to access, easy to learn and understand, and interesting.

The three media were made by researchers with the help of the Canva application, Youtube, and the QuizWhizzer website. Each media has the same discussion content and there is no difference. The discussion contained in the media is the definition of anemia, why young women are prone to anemia, causes of anemia, signs and symptoms of anemia, the impact of anemia, how to prevent and treat anemia, and substances that need to be limited in consumption because they can inhibit iron absorption.

The distribution of samples to each group was randomized until each group had 20 samples each. Samples were obtained using purposive sampling

technique, which is a technique of sampling data sources with certain considerations. The use of purposive sampling technique is because there are certain considerations or criteria that must be met by the samples used in this study. The inclusion criteria in this study were young women aged 12-22 years, domiciled in Bekasi city, and willing to participate in this study, while the exclusion criteria in this study were young women who did not fill out the pretest and/or posttest.

Data were collected using a questionnaire containing 25 questions about anemia, such as definition, impact, signs and symptoms, causes, prevention and treatment of anemia, and substances that need to be limited in consumption. The questionnaire used had previously been validated by the researcher. Overall, the intervention of each group was conducted once on the same day and within approximately 2 hours. Completion of the pretest was carried out 30 minutes before being given education about anemia and the posttest was carried out 30 minutes after being given education about anemia. The assessment carried out based on the questionnaire is that if the respondent answers correctly on one question, it will score 1 point, while if the respondent answers incorrectly, it will score 0 points. Data analysis used a statistical analysis program, namely SPSS version 26 with the Kolmogorov Smirnov test for normality test and Paired Sample T-Test test to see whether there was a change in knowledge level between before and after education.

RESULT AND DISCUSSION

Characteristics of Respondents

This study was conducted on 60 young women who were divided into three groups, each group consisting of 20 young women. The characteristics of all respondents who participated in this study consisting of age, body weight (BW), and height are shown in table 1.

Table 1 above shows that the characteristics of respondents vary from age, weight, height, and BMI. The leaflet group showed that the age characteristics of the youngest respondent were 13 years old and the oldest was 22 years old, with body weight characteristics having a mean of 53.35 ± 7.995 kg, having a mean height of 157.45 ± 4.322 cm, BMI for respondents over 18 years of age (>18 years) at a minimum of 13.01 and a maximum of 26.14, and BMI/A for respondents with an age range of 13 to 18 years at a minimum of -3 SD and a maximum of +1 SD. The animation video group had respondents with the characteristics of the youngest age of 14 years old and the oldest age of 20 years old, body weight characteristics had a mean of 46.40 ± 6.636 kg and height characteristics with a mean of 157.10 ± 2.808 cm. The BMI of respondents aged over 18 years had a minimum of 14.56 and a maximum of 27.05, and the BMI/A of respondents aged 14 years to 18 years had a minimum of -2 SD and a maximum of +2 SD. The QuizWhizzer group shows characteristics according to the age of respondents varying with a minimum age of 14 years old and a maximum age of 22 years old, having body weight characteristics with an average of 51.05 ± 12.791 kg, height characteristics with an average of 155.15 ± 5.029 cm, a minimum BMI of 16.00 and a maximum of 32.00, and a minimum BMI/A of -1 SD and a maximum of 0 SD. The nutritional status of ayoung women can be seen from the body mass index (BMI) and body mass index according to age (BMI/A).

The age of respondents in this study varied, with the youngest being 12 years old and the oldest being 22 years old. Taking the age range in young

Table 1. Characteristics of Respondents

Characterisics	Average ± SD	Min – Max
Leaflet Group		
Age	17.55 ± 3.103	13 – 22
Body Weight	53.35 ± 7.995	35 – 64
Height	157.45 ± 4.322	149 – 165
BMI	21.52 ± 3.047	13.01 – 26.14
BMI for Age	-0.36 ± 1.206	(-3.00) – (+1.00)
Animation Video Group		
Age	15.65 ± 2.033	14 – 20
Body Weight	46.40 ± 6.636	35 – 65
Height	157.10 ± 2.808	154 – 163
BMI	18.75 ± 2.531	15.00 – 27.00
BMI for Age	-0.59 ± 1.004	(-2.00) – (+2.00)
QuizWhizzer Group		
Age	18.05 ± 2.892	14 – 22
Body Weight	51.05 ± 12.791	38 – 82
Height	155.15 ± 5.029	140 – 161
BMI	20.90 ± 4.364	16.00 – 32.00
BMI for Age	-0.60 ± 0.516	(-1.00) – (0.00)

women has previously been adjusted to the age category issued by the Indonesian Ministry of Health as explained in Amin (2017) research that the adolescent category is divided into two periods, namely early adolescence (12 - 16 years) and late adolescence (17 - 25 years). Therefore, to determine the nutritional status of respondents, they were checked based on BMI and BMI/A. Based on the Regulation of the Minister of Health of the Republic of Indonesia (PMK RI) in 2020 concerning Child Anthropometric Standards, BMI/A for ages 5-18 years has 4 categories, namely undernutrition (-3 SD), good nutrition (-2 SD to +1 SD), overnutrition (+1 SD to +2 SD), and obesity (> +2SD), meanwhile based on Kemenkes (2019), BMI has categories, namely the thin category (weight <17.0 and light 17.0 - 18.4), normal (18.5 - 25.0), and obese (light 25.1 - 27.0 and heavy >27). Adolescents with thin and fat categories have a higher risk of anemia. Young women must maintain their weight so that their nutritional status remains good. Previous studies state that there is a positive relationship between nutritional status and the incidence of anemia. Underweight nutritional status describes chronic energy deficiency (CED) in the individual. In addition, overweight and obese nutritional status also have a relationship with the incidence of anemia, where there is increased inflammation in the adipose tissue of obese individuals so that hepcidin production increases and causes iron absorption to be inhibited (Lutfitasari, 2021). However, there are other studies which state that there is no relationship between BMI and the incidence of anemia in young women (Estri & Cahyaningtyas, 2021). The absence of a relationship between BMI and the incidence of anemia is because in addition to Hb levels, BMI is also influenced by many other factors, such as infection, lifestyle changes, liver enlargement, low nutrient intake so that growth is inhibited and causes weight loss and is not ideal.

The Effect of Leaflet Education on Anemia and Nutrition on the Knowledge of Young Women

The paired T-test analysis was used to determine changes in knowledge improvement before and after education using leaflets with a sample of 20 young women. If the analysis results show a p-value > 0.05, it means that there is no change in improvement. Conversely, if the results of the analysis show a p-value <0.05 then there is a change in improvement in the study.

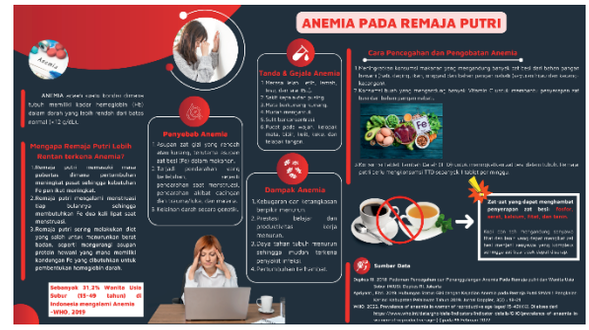

Figure 1. Leaflet on Anemia and Nutrition

Based on table 2 above, the results of the analysis show a change in knowledge improvement between before and after being given education using leaflet media. This increase in knowledge can be seen from the results of the average pretest value of 19.55 ± 291 and posttest of 22.05 ± 2.04. Providing education using leaflet media also shows results in the form of a p-value of <0.001, meaning that there is an effect of providing education about anemia and nutrition using leaflet media on the knowledge of young women. The results of this study are in accordance with research conducted by Puspikawati et al. (2021) which showed differences in anemia knowledge before and after socialization.

Leaflets were chosen as one of the media used because leaflets can be used in all age groups, are easy to carry, see and understand, can be learned by yourself, and can provide more detailed information than being told verbally. The information conveyed in the leaflet, namely the definition of anemia, why young women are more susceptible to anemia, causes, consequences, signs, and prevention of anemia and substances that should not or need to be reduced in consumption to prevent anemia. This information was provided to increase the knowledge of young women about anemia and nutrition. Adequate knowledge about anemia and nutrition will help young women to familiarize themselves with healthier attitudes and behaviors. Research by Agustina and Permatasari (2019) shows in the results of their research that a sufficient level of knowledge can affect our attitudes and actions in choosing healthy foods, regulating consumption

patterns and the types of foods recommended to prevent anemia. After respondents studied the leaflet given, most respondents could understand anemia and nutrition better.

One of the programs to overcome and prevent anemia is the provision of supplementation of blood supplement (TTD) which is distributed to schools. However, due to the low knowledge of anemia and nutrition among young women, many do not take the supplement. Therefore, this information needs to be included in the provision of education using leaflets so that young women understand better.

The Effect of Providing Animated Video Education Media on Anemia and Nutrition on Knowledge in Young Women

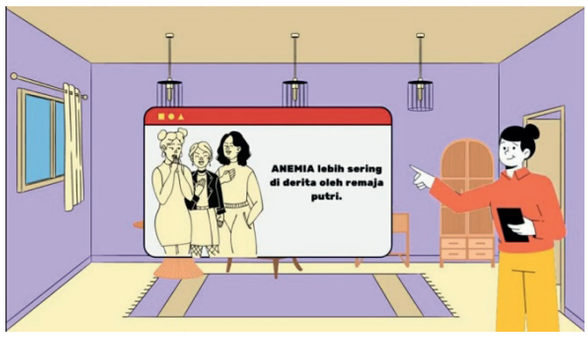

Figure 2. Animated Video on Anemia and Nutrition

Before being given education using animated video media, 20 young women respondents filled out the pretest first. After being given education using animated video media, respondents will again be asked to fill out a posttest. The results of the pretest and posttest will then be analyzed using the paired t-test.

Changes in the increase in knowledge obtained by respondents before and after being given education using animated video media can be seen in Table 2. This increase in knowledge is stated after seeing the results of the p-value of 0.017 (<0.05) so that it can also be stated that providing education using animated video media about anemia and nutrition has a significant effect on the knowledge of adolescent girls. The results of this analysis are in accordance with research conducted by Muyassaroh and Isharyanti (2020) that the provision of health education using video media provides an increase in knowledge in adolescents about premarital anemia.

Animated video is one type of audio-visual media that contains sound and image elements in it. Animated videos used in educational activities are considered to help respondents better understand information, because participants can use two senses directly rather than just looking at information in a book or listening to an explanation of the information (Puspitasari & Satriyandari, 2018).

Providing education using video provides an increase because respondents will more easily understand the information provided by using the senses of sight and hearing than using only one of the senses. In addition, video media has several advantages compared to other media, including videos that can be viewed repeatedly and explanations provided in videos accompanied by images or several properties that can describe the information described so that it is easier for respondents to understand. This is supported by a statement stating that health education using video media can improve learning quite high, because it uses the five senses of vision and hearing (Muyassaroh & Isharyanti, 2020).

Effect of QuizWhizzer Game Education Media on Anemia and Nutrition on Knowledge in Adolescent Girls

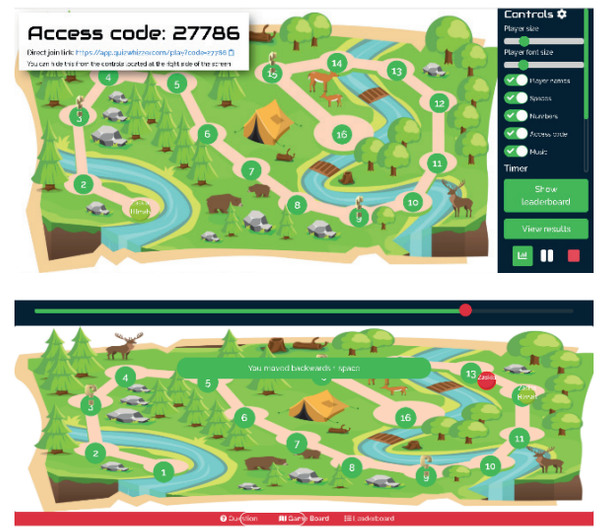

Figure 3 QuizWhizzer Game on Anemia and Nutrition

Data analysis used paired t-test to see the increase in knowledge of adolescent girls about anemia and nutrition using quizwhizzer game media. This game is an online game that is done individually and participated by 20 respondents.

Before playing this game, respondents will be instructed to fill out a pretest first, after which respondents will play while understanding the education provided in this game. Then, after playing and understanding the education about anemia and nutrition, respondents will fill out the posttest.

Average knowledge before and after education using quizwhizzer media. The average knowledge before being given education using quizwhizzer media is known to be 20.85 ± 2.37. The average knowledge after being given quizwhizzer media is 21.90. Knowledge increased after being given education with this game media, indicating a change in the knowledge of respondents. The p-value obtained was 0.012 (P <0.05) which showed that there was an effect of education about anemia and nutrition with quizwhizzer media on the knowledge of adolescent girls. The results of this study are in accordance with research Titisari and Subagyo (2019) which shows the results that the use of game media as a tool to convey anemia knowledge at SDIT Al Falah Sambi has an influence and tends to increase anemia knowledge.

Education provided with game media can help respondents to better understand the information conveyed, respondents will become more interested and relaxed in learning or paying attention to the information in educational games. The use of games as an educational tool is something interesting because students can learn while playing so that it does not cause boredom in students. (Alfiah et al., 2021).

Mean Difference in Knowledge Before and After Education

Table 2. Mean Differences in Knowledge Before and After Education

Educational Media	Average ± SD		p-value
	Pretest	Posttest	
Leaflet	19.55 ± 2.91	22.05 ± 2.04	***0.000***
Animation Video	19.89 ± 3.38	22.0 ± 3.70	***0.017***
QuizWhizzer	20.85 ± 2.37	21.90 ± 1.45	***0,012***

Table 2 shows the differences in knowledge on the three media before and after education. Based on the contents of Table 2, it is known that each media has an influence on increasing respondents' knowledge. The increase in knowledge among respondents in the leaflet media group was higher than those in the animated video and quizwhizzer media groups. This is likely due to the leaflet's simpler appearance, attractive colors, and easier to understand. The average educational media group with the least visible increase in knowledge is the animated video media group. The lack of visible increase in knowledge among respondents in the animated video group may be due to respondents feeling bored and sleepy while watching the animated video because the song used as the background of the animated video tends to be calm or soft.

CONCLUSIONS AND SUGGESTIONS

Providing education about anemia and nutrition using leaflets, animated videos, and quizwhizzer media has an effect on increasing knowledge in adolescent girls in Bekasi city. The highest increase in knowledge is found in leaflet media. The use of leaflet media, animated videos, and QuizWhizzer online games as tools in providing education about anemia and nutrition can increase the knowledge of adolescent girls.

In future studies, anemia education programs can be developed in junior high schools (SMP) and senior high schools (SMA) by considering this study, which directly explains to adolescent girls with the help of leaflet media that contains a brief explanation of anemia so that it is easier to understand. In addition, if using video or other audio-visual media, make sure to explain interestingly, not long-winded, and clearly. If using game media, especially online games, it should be noted that all respondents already understand the procedures for implementing the game and of course look for games that are simple and interesting but can provide appropriate education so that respondents do not feel difficult or bored while playing the educational game.

REFERENCE

Agustina, & Permatasari, P. (2019). Hubungan Pengetahuan dan Penerapan Pesan Gizi Seimbang pada Remaja dalam Pencegahan Anemia Gizi Besi. *Jurnal Ilmiah Kesehatan*

Masyarakat : Media Komunikasi Komunitas Kesehatan Masyarakat, *11*(1), 1–9. https://doi.org/10.52022/JIKM.V11I1.10

Alfiah, S., Putri, B. A., Aryanti, F. A., Savero, R. A., Nigrum, Y., & Dainy, N. C. (2021). DEKAZI GAMES SEBAGAI MEDIA EDUKASI INTERAKTIF GIZI ANAK SEKOLAH DI ERA 4.0. *Jurnal Pengabdian Masyarakat Teknik*, *4*(1), 19–24. https://doi.org/10.24853/JPMT.4.1.19-24

Amin, M. Al. (2017). KLASIFIKASI KELOMPOK UMUR MANUSIA BERDASARKAN ANALISIS DIMENSIFRAKTAL BOX COUNTING DARI CITRA WAJAH DENGAN DETEKSI TEPI CANNY. *MATHunesa: Jurnal Ilmiah Matematika*, *5*(2). https://ejournal.unesa.ac.id/index.php/mathunesa/article/view/19398

Apriyanti, F. (2019). HUBUNGAN STATUS GIZI DENGAN KEJADIAN ANEMIA PADA REMAJA PUTRI SMAN 1 PANGKALAN KERINCI KABUPATEN PELALAWAN TAHUN 2019. *Jurnal Doppler*, *3*(2), 18–21. http://journal.universitaspahlawan.ac.id/index.php/doppler/article/view/429

Dinas Kesehatan Kota Bekasi. (2020). Laporan Gizi Tahun 2020. Bekasi: Kementerian Kesehatan RI

Estri, B. A., & Cahyaningtyas, D. K. (2021). HUBUNGAN IMT DENGAN KEJADIAN ANEMIA PADA REMAJA PUTRI DI SMAN 2 NGAGLIK KABUPATEN SLEMAN. *JKM (Jurnal Kesehatan Masyarakat) Cendekia Utama*, *8*(2), 192–206. https://doi.org/10.31596/JKM.V8I2.683

Kemenkes. (2018). Pedoman Pencegahan dan Penanggulangan Anemia Pada Remaja Putri dan Wanita Usia Subur. In *Kementerian Kesehatan Republik Indonesia*. Kementerian Kesehatan Republik Indonesia. https://ayosehat.kemkes.go.id/buku-pedoman-pencegahan-dan-penanggulangan-anemia-pada-remaja-putri-dan-wanita-usia-subur

Kemenkes. (2019). *Tabel Batas Ambang Indeks Massa Tubuh (IMT)*. Pencegahan Dan Pengendalian Penyakit Tidak Menular.

Kurniasari, R., Cahya, F., Widiastuti, Y., Adi, P., Zainudin, A., Studi, P. S., & Fakultas Ilmu Kesehatan Universitas Singaperbangsa Karawang, G. (2018). HUBUNGAN TINGKAT ASUPAN ENERGI, PROTEIN, DAN ZAT BESI (Fe) DENGAN KEJADIAN ANEMI DAN RISIKO KEKURANGAN ENERGI KRONIK (KEK) PADA IBU HAMIL DI KOTA SEMARANG. *HSG Journal*, *3*(1), 77–90. https://journal.unsika.ac.id/index.php/HSG/article/view/1513

Lutfitasari, A. (2021). Hubungan status gizi dengan status anemia pada mahasiswa putri. *Jurnal Kebidanan*, *10*(1), 51–60. https://doi.org/10.26714/JK.10.1.2021.51-60

Marfuah, D., Pertiwi, D., & Kusudaryati, D. (2016). Efektifitas Edukasi Gizi Terhadap Perbaikan Asupan Zat Besi Pada Remaja Putri. *Profesi: Media Publikasi Penelitian*, *14*(1), 5–9. https://doi.org/10.26576/PROFESI.129

Murnariswari, K. (2021). HUBUNGAN SIKAP DAN PENGETAHUAN SISWI TENTANG ANEMIA TERHADAP KEPATUHAN KONSUMSI TABLET TAMBAH DARAH DALAM PROGRAM PENCEGAHAN DAN PENANGGULANGAN ANEMIA GIZI BESI DI SMP NEGERI 26 KOTA BEKASI TAHUN 2020. In *Undergraduate Theses of science of nutrition* (Vol. 0, Issue 0). https://digilib.esaunggul.ac.id/public/UEU-Undergraduate-19717-COVER.Image.Marked.pdf

Muyassaroh, Y., & Isharyanti, S. (2020). Pengaruh Media Audiovisual dan Booklet "SECANTIK TAMI" (Sehat dan Cantik Tanpa Anemia) Terhadap Pengetahuan Dan Sikap Remaja Tentang Anemia Premarital. *Jurnal Kesehatan Madani Medika (JKMM)*, *11*(2), 129–138. https://doi.org/10.36569/JMM.V11I2.115

Puspikawati, S. I., Sebayang, S. K., Dewi, D. M. S. K., Fadzillah, R. I., Alfayad, A., Wardoyo, D. A. H., Pertiwi, R., Adnin, A. B. A., Dvi, S. I., Manggali, T. R., Septiani, M., & Yunita, D. (2021). Pendidikan Gizi tentang Anemia dan Konseling Kesehatan Mental pada Remaja melalui Program Kenal Sebaya. *Media Gizi Kesmas2021*, *10*(2), 278–283. https://e-journal.unair.ac.id/MGK/article/view/30588/16208

Puspitasari, A. I., & Satriyandari, Y. (2018). The Effect of Audiovisual Counseling of Conception Period and Nutrients to the Nutrient Improvement Motivation on Pregnant Mothers at Primary Health Center Girisubo Gunungkidul Yogyakarta in 2015. *KnE Life Sciences*, *4*(10), 113-121–113–121. https://doi.org/10.18502/KLS.V4I10.3713

Putri, R. D., Simanjuntak, B. Y., & Kusdalinah. (2017). Pengetahuan Gizi, Pola Makan, dan Kepatuhan Konsumsi Tablet Tambah Darah dengan Kejadian Anemia Remaja Putri. *Jurnal Kesehatan*, *8*(3), 404–409. https://doi.org/10.26630/JK.V8I3.626

Simanungkalit, S. F., & Simarmata, O. S. (2019). Pengetahuan dan Perilaku Konsumsi Remaja Putri yang Berhubungan dengan Status Anemia. *Buletin Penelitian Kesehatan*, *47*(3), 175–182. https://doi.org/10.22435/BPK.V47I3.1269

Titisari, N., & Subagyo, A. (2019). *Pengaruh Penggunaan Media Game Edukasi terhadap Peningkatan Pengetahuan Anemia pada Siswa SDIT Al-Falaah Sambi Boyolali*. Uiversitas Muhammadiyah Surakarta.