

The Effect of Nutrition Education with E-Booklet Media on Knowledge and Attitude About Anemia in Adolescent Girls at SMP N 1 Gemuh, Kendal Regency

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ABSTRACT

Adolescent girls are a group that is susceptible to nutritional problems, one of which is anemia. This is because young women are on a period and have menstruation every month, resulting in iron loss. E-Booklet is one of the educational media that contains text and images that are combined so that it is attractive to the reader. Providing education using e-booklets is expected to increase knowledge and attitudes about anemia so that it can prevent the incidence of anemia in adolescents. This study aims to know the effect of providing nutrition education with e-booklet media on knowledge and attitudes about anemia in adolescent girls at SMP N 1 Gemuh.

This study uses a true-experimental design with pre and post-test control group design. The data collected are knowledge and attitude score data. Statistical analysis using Independent T-test and Mann-Whitney Test.

The result showed that the development of an e-booklet on anemia in adolescent girls is worthy to use in research. There was an increase in the average knowledge score, namely in the control group by 22.33 and the intervention group by 32.6. There was an increase in the average attitude score in the control group which was 0.37 and in the intervention group was 0.64. Therefore, Nutrition education with e-booklet media can increase knowledge ($p=0.004$) and attitudes ($p=0.001$) about anemia in adolescent girls.

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Introduction

Anemia is one of the most common nutritional problems in both developing and developed countries. The prevalence of anemia in the world according to the World Health Organization (WHO) in the prevalence of anemia worldwide in 2015 was around 40% - 88% (Apriyanti, 2019). The group that is prone to anemia nutritional problems is the group of young women. This is because young women are in the growth phase and young women will lose blood every month because they are menstruating. Blood loss during menstruation will result in a loss of iron by 5%-10% so it can cause iron deficiency (Farinendya, Muniroh, and Buanasita, 2019).

Adolescent girls who experience mild or severe anemia in Southeast Asia reach 25-40%. The prevalence of anemia based on the results of Riskesdas in 2013 was 37.1%, then increased in 2018. While in Central Java in 2017 the number of anemia showed a figure of 50% and anemia was found in adolescent girls (RI, 2018).

Knowledge and attitude play an important role in the incidence of anemia. This is evidenced by the research conducted by Caturiyantiningtiyas (2015), in this research, there is a relationship between knowledge and attitudes with the incidence of anemia. The results showed that 64.9% of respondents with low knowledge experienced anemia, and 78.8% of respondents with low attitudes experienced anemia. This is because

knowledge of anemia will affect adolescents to choose nutritious foods and have high iron content, and if adolescents have high knowledge about anemia, adolescents can avoid foods and drinks that can inhibit iron absorption. Meanwhile, in adolescents with a good level of knowledge about anemia, it will encourage the emergence of good attitudes according to their knowledge (Caturiyantiningtiyas, 2015).

Nutrition education is one of the efforts to increase knowledge and attitudes. One method to conduct nutrition education is to use the media. Booklets are educational media that contain writing and are then combined with interesting images so that they can stimulate readers to increase knowledge (Muhdar, Indria, and Rusniah, 2018). This encourages the provision of information technology-based nutrition education using e-booklets. The e-booklet will present a module with an electronic display so that it can turn each page into a book (Ana et al., 2015).

The purpose of this study was to determine the effect of providing nutrition education with e-booklet media on knowledge and attitudes about anemia in adolescent girls at SMP Negeri 1 Gemuh.

Method

This type of research is true-experimental research with a pre and post-test control group design. This research was conducted at SMP N 1 Gemuh and SMP N 3 Gemuh which was carried out for 1 week. The population of this study was class IX students with 129 students at SMP N 1 Gemuh and 94 at SMP N 3 Gemuh. The sample in this study was taken randomly among as many as 15 students at SMP N 1 Gemuh as the intervention group and 15 students at SMP N 3 Gemuh as the control group.

At the beginning of the study, both groups were given a pre-test regarding anemia. Then the two groups were given education 2 times a week through google meet using PowerPoint, but the intervention group, they were given e-booklets which were distributed through the WhatsApp application. One day after education, both groups were given a post-test regarding anemia. Knowledge scores were measured using percentages and attitude scores were measured using the mean. Statistical analysis used is the Independent T-Test and Mann-Whitney test.

Results

Sample Characteristics

Table 1. Distribution of samples by age group

Variable	Control		Intervention	
	N	%	n	%
Age				
14 years	10	66,7	12	80
15 years	5	33,3	3	20

The age of the study sample was in the age range of 14-15 years, the control group was 14 years (66.7%) and 15 years (33.3%), while the intervention group was 14 years (80%) and 15 years (22%).

Knowledge and Attitude

Table 2. Knowledge and Attitude Score

Variable	Control		Intervention		Mean ± SD	Mean ± SD
	n	%	n	%		
Knowledge						
Before						
Good	0	0	38,6	0	0	46,6
Not Enough	15	100	10,3	15	100	10,3
			8			6
After						
Good	0	0	60,9	10	66,7	79,2
Not Enough	15	100	3 ± 11,2	5	33,3	10,4
						2
Attitude						
Before						
Support	8	53,3	2,9	9	60	2,74
Doesn't Support	7	46,7	0,29	6	40	0,44
After						
Support	8	53,3	3,27	8	53,3	3,38
Doesn't Support	7	46,7	0,27	7	46,7	0,3

Based on the table above, before being given education about anemia, the average score of knowledge in the control group was 38.6 and increased after being given education to 60.93. In the intervention group, the average score of knowledge before being given education using e-booklet media was 46.6 and increased after being given education to 79.2.

Based on the table above, before being given education about anemia, the average attitude score in the control group was 2.9 and after being given

education it increased to 3.27. In the intervention group, before being given nutrition education, the average was 2.74 and increased to 3.38.

The Effect of Nutrition Education on Knowledge and Attitude

Table 3. The Effect of Nutrition Education with E-Booklet on Knowledge and Attitude

Variable	Control	Intervention	p-value
	Mean \pm SD	Mean \pm SD	
Knowledge			
Before	38,6 \pm 10,38	46,6 \pm 10,36	0,54 ^b
After	60,93 \pm 11,2	79,2 \pm 10,42	0,000 ^b
Difference	22,33 \pm 0,82	32,6 \pm 0,06	0,004 ^b
Attitude			
Before	2,9 \pm 0,29	2,74 \pm 0,44	0,235 ^a
After	3,27 \pm 0,27	3,38 \pm 0,3	0,289 ^a
Difference	0,37 \pm 0,02	0,64 \pm 0,14	0,001 ^b

^aIndependent T-Test ^bMann-Whitney

Based on the table above, the statistical test results obtained a value of $p = 0.004$ ($p < 0.05$), which means that nutrition education with e-booklet media can increase knowledge about anemia in adolescent girls.

Based on the statistical test, the value of $p = 0.001$ ($p < 0.05$) means that nutrition education with e-booklet media can improve attitudes about anemia in adolescent girls.

Discussion

Based on the research that has been done, it can be seen that there is an increase in knowledge and attitude scores before and after nutrition education using e-booklet media. E-booklet is one of the educational media in the form of a module with an electronic display so that each page can be turned into a book (Ana et al., 2015). E-booklets can be accessed through technological devices such as mobile phones, computers, and laptops. (Amalia, Yuniawati and Murti, 2020). Providing media in education can help deliver messages or information. Media is made based on the principle that the five senses function to receive knowledge that is in everyone. If the five senses play a large role, the more and more clear the knowledge will be gained (Notoatmodjo, 2014). The use of educational media will be very helpful in the learning process, media in health education aims to raise attention to a problem and remind the information submitted to cause changes in knowledge and attitudes (RP et al., 2014). Apart from being able to increase

motivation, educational media can also help increase students' understanding of the material presented (Priawantiputri, Rahmat, and Purnawan, 2019). In addition, the use of media can help educators in delivering material (Safitri and Fitranti, 2016). The e-booklet in this study has been tested for feasibility by providing an assessment questionnaire to the Health Promotion Lecturer and has received some suggestions for the e-booklet material.

The provision of e-booklet educational media can increase the average knowledge score in the intervention group compared to the control group because e-booklet media has advantages such as, it can be stored and easy to carry anywhere, can be read again if the reader forgets the material, can load writing and many pictures, e-booklets are also accompanied by interesting pictures to avoid boredom of teenagers in reading. Meanwhile, the control group who was only given education without e-booklets had a smaller average knowledge score because education was only done with lectures, and the students were easy to feel bored just by listening to the material will affect the concentration of students in listening to the material which results in the knowledge gained (Riri, 2020).

The increase in knowledge in this study is following previous research conducted by Permadi (2021) in a junior high school in Patrang District, Jember, indicating that there is a significant difference in students' knowledge after being given intervention with booklet media by showing $p = 0.000$ (Permadi et al., 2021). Another study conducted (Hasanah and Permadi, 2020) on high school students in Probolinggo Regency showed that health education with booklet media had a significant effect on increasing students' knowledge which was indicated by a p-value = 0.000 (Hasanah and Permadi, 2020).

The results also showed that there were differences in attitudes between the control and intervention groups, indicating that nutrition education with e-booklets was better in improving attitudes than lectures without e-booklets. This is in line with research (Pratiwi, 2017) conducted on class VIII students at SMP N 1 Cangkringan Sleman showing that there is an effect of giving books on students' attitudes with a p-value of 0.000 (Pratiwi, 2017). Research conducted (Mursida, 2016) on students at SMP Negeri Palibelo showed that there was a significant effect of health education with media books on increasing attitudes with a p-value of 0.014 (Mursida, 2016).

Attitude is a positive or negative feeling as a person's response to an object, person, and environment as a result of the knowledge and experience that has been obtained (Bedy, Hidayanti, and Fatimah, 2018). A person's level of knowledge can affect attitudes towards an object, if the knowledge possessed is good then someone will think about the benefits and losses that will be

obtained. If knowledge increases, it will encourage someone to have a good attitude following the knowledge that has been obtained (Fitriani Dwiana, Eko and et al, 2019). Attitude is an important component in the human psyche that will affect a person's behavior. Attitudes will affect all decisions that will be chosen (Gayatri, 2014). With nutrition education, a person will get information about nutritional problems so that it will raise awareness of nutritional health which causes a person to know according to the knowledge obtained. The ultimate goal of nutrition education is to change attitudes and actions toward a better direction to achieve optimal nutrition and health conditions (Diba, Pudjirahaju, and Komalyna, 2020).

Conclusion

The e-booklet media in this study has gone through a feasibility test so that it can be used as an educational media in research. The sample in this study was 14-15 years old. The average knowledge score in both groups increased from 46.6 to 79.2 in the intervention group and from 38.6 to 60.93 in the control group. The average attitude score in both groups increased from 2.75 to 3.38 in the intervention group and from 2.9 to 3.27 in the control group. Nutrition education with e-booklet media can increase knowledge about anemia in adolescent girls with a value of $p = 0.004$ ($p < 0.05$) and attitudes about anemia in adolescent girls with a value of $p = 0.001$ ($p < 0.05$).

In an effort to prevent anemia in adolescent girls, it is suggested that the provision of nutrition education can use e-booklets as an educational medium to increase knowledge and attitudes about anemia in adolescent girls. It is recommended that e-booklets be designed as attractively as possible to attract the interest of the readers.

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