



THE EFFECT OF NUTRITIONAL EDUCATION THROUGH POSTER MEDIA AND VIDEO ON THE IMPROVEMENT OF KNOWLEDGE ABOUT ANEMIA IN ADOLESCENT PRINCESS

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ABSTRACT

Background: Nutritional anemia is a major nutritional problem in the world, including in Indonesia, which is caused by iron deficiency. Iron deficiency anemia has infected more than 600 million people worldwide and in developing countries the prevalence reaches 51%. In Indonesia, the prevalence of anemia in adolescent girls is 22.7%. The effects of anemia can cause ongoing stress and complications from fatigue. The influencing factor is the lack of knowledge of young women about anemia. Efforts to increase knowledge of young women on anemia health problems can be done through nutrition education. The purpose of this study was to determine the effect of nutrition education through posters and videos on knowledge of anemia in adolescent girls.

Methods: The research design used was quasi experimental with a pre-post test group design, which was carried out in April 2021. The research subjects were young women aged 12-18 years consisting of two groups, namely the poster media group and video media, with a total of 40 respondents. Data analysis used paired sample t-test.

Results: Based on the results of the Paired Sample T-Test, it showed that knowledge increased after education, both in the poster and video groups. There were differences in respondents' knowledge of the effect of using nutrition education media through posters ($p = 0,021$) and videos ($p = 0,001$).

Conclusion: Nutrition education has an effect on knowledge of anemia in adolescent girls, as well as more effective education through video media.

Keywords: Nutrition education, anemia, posters, videos

INTRODUCTION

Anemia is one of the main nutritional problems in Indonesia, especially iron deficiency anemia. Cases of anemia are very prominent in school children, especially adolescent girls. Adolescent girls are at high risk of suffering from anemia, because at this time there is an increase in the need for iron due to growth and menstruation. High school activities, lectures and various organizational and extracurricular activities will have an impact on irregular eating patterns, besides the habit of consuming beverages that inhibit iron absorption will affect a person's hemoglobin level^[1].

Teenagers according to their understanding come from the Latin *adolescere* which means "to grow" or "to grow into adulthood". During adolescence, there is rapid physical and character growth, so it is considered very important to pay attention to and prepare for the growth of adolescents to be able to compete in the future. Growth is a process of physiological change that is progressive, continuous and lasts for a certain period^[2]. According to the *World Health Organization* (WHO) in 2015, adolescents are residents in the age range of 10 to 19 years. Adolescence is a period of important concern because it has a direct impact on the physical and psychological changes of adolescents^[3]. As a result of physical and psychological changes, nutritional adequacy problems in adolescents can cause several health problems, health problems that can occur are anemia^[3].

Based on the results of Riskesdas 2013, the prevalence of anemia in Indonesia in adolescent girls aged 13-18 years is 22,7%^[3]. While at the 2018 Riskesdas, anemia in pregnant women in Indonesia at the age of 15-24 years was 84,6%^[4]. Anemia affects more than 57% of adolescent girls in Indonesia. Anemia in adolescent girls is a health problem with a prevalence of >15%^[3]. The

prevalence of anemia is high in adolescents, if not handled properly it will continue to mature and contribute greatly to maternal mortality, premature birth, and low birth weight babies^[5].

Adolescent girls are ten times more likely to suffer from anemia. This is because young women experience menstruation every month and are in a period of growth so they need more nutritional intake. Imbalance in consuming iron is also a cause of anemia in adolescents^[6]. In addition, the factor that causes anemia in adolescent girls is knowledge. Adolescent girls' high level of knowledge about anemia affects eating habits which in turn will affect hemoglobin levels^[5]. Based on research Wetippulinge (2006), states that there is a significant relationship between knowledge of anemia on hemoglobin levels in adolescent girls^[7].

Knowledge or cognitive is a very important domain for the formation of one's actions. Efforts to increase knowledge about anemia in adolescent girls can be done by means of nutrition education which is carried out using certain educational techniques and media. According to research by Dwiana, et al (2019), regarding counseling on nutritional anemia with motion video media on the knowledge and attitudes of young women, it was stated that the average change in knowledge and attitude scores after an intervention using motion video media^[8]. The method used in this research is to combine poster media and video media.

There is no research that compares these methods separately by looking at knowledge, attitudes and behavior, providing education does not necessarily change attitudes and behavior directly. Giving must be gradual and seen from several other factors causing changes^[9]. Education in this study was given in stages over a week.

The purpose of this study was to determine the effect of nutrition education

with posters and videos on knowledge about anemia in adolescent girls.

SUBJECT AND METHOD

The research design used in this study was a *quasi-experimental* design with a *pre-post test group design*. The study was conducted by conducting the first observation through a pre-test before the intervention was carried out and observations were carried out again through a post-test after the intervention^[10]. The intervention was carried out only once. The intervention used was in the form of providing online education with the help of the *Whatsapp* application through poster and video media. This research was conducted on April 10-16, 2021.

The sample size in this study for each group (poster and video) was 20 respondents. The total number of samples in this study were 40 respondents. The respondents used in this study were different. The target of this study was young women aged 12-18 years with samples selected by purposive sampling with inclusion and exclusion criteria. The inclusion criteria were Indonesian citizens, young women aged 12-18 years, participating in the *Whatsapp* group, and willing to be research subjects. The exclusion criteria are not Indonesian citizens, young women who were not yet 12 – 18 years old, participants who did not fill out one of the *pre-test* or *post-test* given. The instrument of this research is a questionnaire about knowledge anemia which is shared online via the *Google Form* link on the *Whatsapp* group.

The data collected in the form of respondent's characteristics data (age, education), and knowledge scores about anemia before and after the intervention obtained from the questionnaire. Data types of education are categorized into elementary, junior high, high school and undergraduate. Knowledge of anemia is expressed in scores.

The knowledge score was obtained from a knowledge questionnaire about anemia with 20 items of questions. For the knowledge variable, this questionnaire was compiled using a single-choice question form with choices a, b, c, and d then respondents were asked to choose one of the answers. The correct answer is given a score of 1 and the wrong answer is given a value of 0, so that a score of 20 is obtained if all answers are correct^[8].

Data analysis was carried out using an educational program. Univariate analysis in the form of presentation of frequency and percentage was carried out to see the characteristics of respondents consisting of age and education. The ratio data was tested for normality before. Bivariate analysis was carried out to analyze whether there was an effect of education with the *Paired Sample T-test*.

RESULTS

Characteristics of Respondents

Characteristics of respondents based on age and education can be seen in Table 1. Based on age characteristics in the poster group at most 17-18 years old, which is 65% as many as 12 respondents and at least 15-16 years old, which is 5%, 1 respondent, while in the video groups aged 12-14 years and 15-16 years were the same amounting to 35% as many as 7 respondents. On the educational characteristics of the poster and video groups, the majority of respondents came from SMA/SMK/MA respectively 9 respondents (45%) and 10 respondents (50%), while the poster group at least came from SD/MI as many as 1 respondent (5 %) and the video group from S1 as many as 2 respondents (10%).

Table 1. Distribution of Respondents Characteristics

Characteristics	Poster		Videos	
	n	%	n	%
Age (years)				
12 – 14	6	30	7	35
15 – 16	1	5	7	35
17 – 18	12	65	6	30
Education				
SD/MI	1	5	3	15
SMP/MTS	5	25	5	25
SMA/SMK/MA	9	45	10	50
S1	5	25	2	10

Source: Primary Data, 2021

Frequency Distribution of Knowledge Level about anemia before and after intervention

The frequency distribution of the level of knowledge about anemia before and after the intervention in the form of nutrition education with posters and videos media for 1 week during the research time is presented in Figure 1 and Figure 2. Based on Figure 1, it can be seen that the knowledge about anemia in the pre-test poster group majority had sufficient knowledge as much as 75% and after the intervention, the poster group experienced an increase in the moderate category as much as 55%.

Based on Figure 2, it can be seen that the majority of knowledge about anemia in the pre-test video group is sufficient as much as 60% and the majority of the post-test video group is good as much as 65%. After the intervention, the video group experienced an increase in the good category as much as 65%. It can be concluded that the poster and video groups experienced an increase at the end of the study.

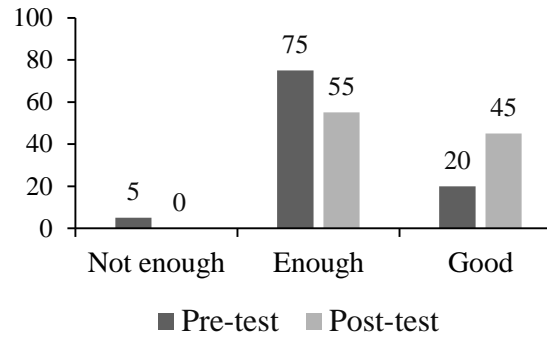


Figure 1. Frequency Distribution of Knowledge about Anemia Before and After with Poster Media

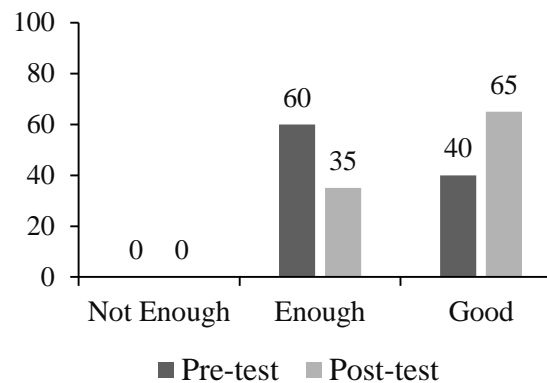


Figure 2 . Frequency Distribution of Knowledge about Anemia Before and After with Video Media

Differences in Knowledge Before and After Intervention

The results of the normality test are known to have normal results from both groups $p > 0,05$ so that the *pre-test* and *post-test* knowledge categories can be measured using the *Paired T-test*.

Table 2. Differences in Knowledge Before and After Intervention

Knowledge	Mean±SD (Min-Max)	p-value*
Poster		
<i>Pre-test</i>	12,40±2,47 (7-17)	0,021

<i>Post-test</i>	14,20±2,72 (9-19)	
Videos		
<i>Pre-test</i>	13,45±3,12 (8-19)	
<i>Post-test</i>	15,80±3,12 (10-20)	0,001

**Test Paired Sample T-test*

The results of statistical tests using the *Paired Sample T-test* showed that there was a significant difference between knowledge before and after the intervention in the two groups, namely $p = 0,021$ and $p = 0,001$ ($p < 0,05$). Verarica's research (2016) which shows that after being given education there is an increase in knowledge in young women^[11]. Other studies show that there are differences in the level of knowledge of adolescents before and after being given health education through video media^[12]. Anifah (2020) states that the level of knowledge of adolescents can be influenced by the information obtained, the less information received, the smaller the level of one's knowledge. Video is a medium that uses audio and visual which is an intermediary about the material so as to build conditions that make teenagers able to acquire knowledge and skills^[12]. Media in health education has the benefit of clarifying the material presented, overcoming the limitations of space, time and senses and passive attitude^[13]. Counseling on nutritional anemia with motion video media can have an impact on increasing the knowledge and attitudes of young women^[8].

DISCUSSION

The results of the study on the poster group showed that there was a significant difference before and after the media was given. In line with the results of previous studies which showed the results of the *Wilcoxon signed rank* on the data before and after the poster group intervention, namely 0,000 which

indicates there is a difference in the knowledge of young girls (santriwati) between before and after being given health education^[14]. Similar results are shown in a study conducted by Sefaya (2017) where there are differences in the level of knowledge provided by nutrition education about anemia using pocket books^[15]. Posters have advantages as learning media such as being able to make it easier and faster for respondents to convey messages, can be equipped with colors that can attract students attention, the shape is simple and easy to make.

The results of the analysis in the poster group showed a difference in the average pre-test and post-test scores. In addition, the results of the analysis in the video group also showed the same thing that there was a difference in the average *pre-test* and *post-test* scores. In line with research conducted by Anifah (2020) shows that there is a difference in the average value of the knowledge pre-test, which is 7,5 and the result of the knowledge post-test score, which is 8,2^[12]. Other research shows that there is an increase in the average score in the video group, leaflets and posters before and after the intervention^[16].

This study uses posters and videos as a medium for health education to respondents. The selection of intervention media in this study is in line with previous research conducted in Thailand, which showed that health education using demonstration videos had a significant impact on public acceptance, knowledge and behavior^[17]. The selection of media in the form of posters and videos is based on the idea that the five senses that transmit the most information to the brain are the eyes (approximately 75%-87%), while the other 135-25% are obtained and channeled through the other five senses^[18]. Information will also be easier to receive and remember if you use more than one sense^[19]. From the results of research conducted by Kurniawan (2012) shows that the difference in the average

score of attitudes and behavior in disposing of waste in respondents who are given health education using audio-visual media is higher than the average difference in the attitude scores given. health education using visual media^[20].

CONCLUSIONS

Based on the results of this study, it can be concluded that online education is effective in increasing the knowledge of young women by using posters and videos. There was an effect of nutrition education on knowledge before and after the intervention was given to the poster group and the video group. There is a significant difference in the average knowledge before and after the intervention through posters and video media, it is higher that nutrition education is given by video.

For further research, it is hoped that further research can be carried out and improve this research by involving a larger number of samples.

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