The Effect of Social Media "Tik Tok" to Increase Adolescent Girls Knowledge of Anemia Prevention at SMAN 3 Kediri

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ABSTRACT

Based on data from the Health Office of the City of Kediri, the risk of anemia in adolescents in the age range of 15-18 years from a total examination of 16,524 adolescents was 457 (2.76%) female adolescents and 19 (0.11%) male adolescents. Tik Tok is a popular media for various groups, including teenagers. Tik tok social media is able to provide interesting education because it uses movement, animation with a short duration. The provision of anemia education is carried out to prevent anemia. This study aims to analyze differences in adolescent knowledge of anemia prevention. Analyzing differences in adolescent knowledge of anemia prevention in the control group and the treatment group. This research uses quantitative methods with Quasi Experimental Design (Pre test – Post test Control Group Design). The research population was all students of class XI SMAN 3 Kediri. A sample of 140 respondents was obtained by proportional random sampling technique into the treatment and control groups. The research instrument is a structured questionnaire. Data analysis using T Independent Test and Paired T Test. The result of this research is, there are differences in pre and post test scores in the two groups. The mean value of the treatment pre-test was 14 points and the control group was 11 points. Meanwhile, the mean value of the post-test in the treatment group was 15 points and the control group was 12 points. The results of statistical tests showed that the difference in knowledge before and before providing education with an alpha value of 0.000 <0.05. Educational videos through tik tok can increase respondents' knowledge. There is a difference in knowledge between the control group and the treatment group, it can be concluded thah H0 is accepted. It is hoped that young women can increase their knowledge regarding anemia in various media. For the puskesmas, they can provide counseling to young women who reveal to the school to show educational videos in each class.

I. Introduction

Anemia is a non-communicable disease that is a health problem in the world. Anemia occurs due to iron deficiency. The incidence of anemia can develop to be more dangerous if it experiences a severity such as reduced oxygen transport that occurs due to reduced red blood cell formation. According to Lemone (2016), anemia develops gradually and causes oxygen to decrease.

According to WHO data, the prevalence of anemia in women aged 15-49 was 29.9% in 2019. The incidence of anemia in women of childbearing age since 2000 has remained or has not decreased. (Organizatin, 2019)

Research conducted in India also shows that adolescents have a susceptibility to the incidence of anemia. In this study, there were 604 unmarried female respondents who

experienced anemia as many as 418 (69.2%) (Srivastava, Kumar, & Sharma, 2016). Anemia at school age children with the highest prevalence in Asia is Southeast Asia with a presentation of 60% of patients. (Lestari, Widardo, & Mulyani, 2016)

The group that has a susceptibility to anemia is high school age girls. This is because young women need more iron intake when they experience menstruation every month. If iron intake is lacking, it can cause anemia in these young women. (Restuti & Susindra, 2017)

Adolescence is a period of transition from childhood to adulthood. According to WHO, the age range for adolescents is 12-24 years. Meanwhile, according to the National Population and Family Planning Agency (BKKBN) a teenager is said to be a teenager if someone is aged 10 to 24 years. (BKKBN, 2019)

Adolescents who are able to accept input and can think rationally are the age of the end of high school, namely with an age range of 15 to 18 years. It is known that this age has experienced cognitive development, such as critical thinking, being more independent and liking new things. (America, 2018)

According to the Department of Nutrition and Public Health, anemia generally occurs in developing countries such as Indonesia. According to Riskesdas 2018 data, the incidence of anemia in women (27.2%) was higher than men (20.3%). While the incidence of anemia in the 15-24 year age group was 32% in 2018.

Meanwhile, data from the Kediri City Health Office for the 2019/2020 academic year regarding the risk of anemia in adolescents with an age range of 15-18 years from a total examination of 16,524 adolescents found 457 treatments for women (2.76%) and 19 treatments for boys (0 11%). In senior high schools that have been screened at the Pesantren I health center, it is known that the number of students who experience the risk of anemia in adolescent girls is 4 times higher than that of boys.

The data found by researchers regarding the incidence of anemia risk in 119 students at SMAN 3 Kediri City as much as 60.6% experienced the risk of anemia. This is known from the respondents' statements through self-detection based on a history of anemia and signs of anemia.

Research conducted by Shinta et al (2019) found that 63.4% of female students were anemic. And among female students at Airlangga University there are 70% who experience anemia. This incident shows that the incidence of anemia in Indonesia is still high. (Akib & Sumarmi, 2017)

Based on a survey conducted by the Association of Indonesian Internet Service Providers (APJII), information was obtained that the number of internet users in Indonesia in 2019 to 2020 experienced a large increase compared to 2018. The percentage of internet users in 2019 to 2020 reached 73.7% or 196 7 million people out of a total population of 266,911,900 million in 2019.

Tik tok is a social media originating from China and was created in 2016. The tik tok application gives its users the freedom to make videos with short music.(Aji, 2018). Tik tok is a social media that has a high rate of development compared to other social media such as Facebook, Instagram and Youtube. Tik tok social media users in 2019 totaled 700 million users and every day there are 1 billion videos that can be watched by users. (Martono et al., 2021)

In July Tik Tok was blocked in Indonesia due to disputes over negative impacts but this did not reduce the number of users. After 3 months of being blocked and reactivated, Tik Tok users in Indonesia have reached more than 10 million. Most users are school-age children who are the millennial generation. Therefore, Tik Tok can be used in the form of learning or appropriate information dissemination media. (Aji, 2018)

Tik Tok social media is a social media that is being favored by teenagers. Based on previous research that teenagers as millennials are more interested in viewing various videos

on Tik Tok social media which are considered easier to understand. (Hasiholan, Pratami, & Wahid, 2020)

This is also evidenced by the results of Fasha Nabila's research (2020) that the use of Tik Tok social media is quite large among teenagers. It was proven in this study that out of 114 respondents, 67 respondents had a moderate level of intensity using the Tik Tok application. And as many as 74 respondents have a moderate category in the frequency of using this application.

II. Methods

This study uses a quantitative method with a Quasi Experimental Design (Pre test – Post test Control Group Design) research design. The research design used in this study was to divide the research sample into two groups, namely the treatment group and the control group. The treatment group was given an anemia prevention education video through Tik Tok social media. The video given to respondents contains the understanding of anemia, signs, symptoms, the impact of anemia and how to prevent anemia. The duration of the video is 3 minutes which is seen by the treatment group 3 times. The animated video given to the respondents has been validated by the field supervisor from the Pesantren I Health Center. This research is appropriate because the treatment group already has tik tok social media. While the control group did not receive educational videos. This research was conducted in November 2021 at SMAN 3 Kediri City on 11th grade female students with a total population of 221 students with Proportional Random Sampling sampling technique obtaining a sample of 140 respondents. The total sample was divided into two groups, namely the control group and the treatment group. Respondents in this study were aged 15-19 years who were in grade 11 majoring in Mathematics and Natural Sciences and Social Sciences. The total sample was divided into two groups, namely the control group and the treatment group. Respondents in this study were aged 15-19 years who were in grade 11 majoring in Mathematics and Natural Sciences and Social Sciences. The total sample was divided into two groups, namely the control group and the treatment group. Respondents in this study were aged 15-19 years who were in grade 11 majoring in Mathematics and Natural Sciences and Social Sciences.

Variables in this study there are independent variables and dependent variables. The independent variable is the independent variable that affects the dependent variable. In this study the independent variable is social media tik tok (X). While the dependent variable is the dependent variable which is influenced by the independent variable. The dependent variable in this study is knowledge (Y).

The instrument used in this study was a questionnaire regarding the prevention of anemia. The distribution of the questionnaires was carried out online through the google form. With the number of questions on the questionnaire, there are 20 questions regarding knowledge of adolescent anemia. The data was processed using SPSS by using two tests, namely paired t test and independent t test. This study uses two tests because it aims to determine the difference between the control and treatment groups. And to find out the differences in the treatment groups who received treatment in the form of educational videos. The questionnaire given to the respondents has been tested for validity and reliability. The alpha value used is 0.05. If the statistical test results are less than the alpha value, the research results are different.

III. Results and Discussion

Results

The study was conducted on 140 respondents who were divided into the control group and the treatment group. The treatment group received treatment in the form of an animated video on tik tok social media.

Table 1. Knowledge of Anemia in Teenage Girls Pre Test

Group	Median	Mode	Mean	Minimum Value	Maximum Value	Range
Treatment	14	13	14	6	19	13
Control	12	13	11	4	18	14

Source: Primary Data

Based on the table above, it is known that the treatment group already has better knowledge than the control group seen from the average value of pre-test knowledge in the treatment group has an average value of 14 while in the control group with a value of 11. The pre-test knowledge in the treatment group has a distance smaller than the control group. The two groups from the range value have a difference of one point.

Table 2. Table of Knowledge of Adolescent Women's Anemia Post Test

Group	Median	Mode	Mean	Minimum Value	Maximum Value	Range
Treatment	16	16	15	9	20	11
Control	12	11	12	4	18	14

Source: Primary Data

Based on the table above, it is known that the post-test scores of the treatment group that received the educational video had a higher average than the control group. The two groups have an average difference of 2 points.

Statistic test

Table 3. Normality Table

	Group	Sig	N	Statistics
PRE	Control	0.061	70	0.104
	Treatment	0.200	70	0.090
POST	Control	0.071	70	0.101
	Treatment	0.058	70	0.104

Source: SPSS Primary Data

Based on the normality table, it shows that the data in this study has a sig valueα> 0.05 which explains that the data is normally distributed.

1. **To identify adolescent knowledge of anemia prevention in the control group, a paired t test was performed.**

Table 4. Table of Paired T Test Results of Control Group

Paired t test			
PRE-POST	N	Correlation	Sig. (2- tailed)
	70	0.984	0.000

Source: SPSS Primary Data

Based on the results of the paired t test shows that the value of Asymp.Sig. (2 tailed) of 0.000. It was concluded that 0.000 < 0.05, then there was a difference in knowledge between pre and post in the control group. These results also show that there is an increase in knowledge in the control group.

2. To identify adolescent knowledge of anemia prevention in the treatment group

Table 5. Table of Paired T Test Results of Treatment Groups

Paired t test			
PRE-POST	N	Correlation	Sig. (2- tailed)
	70	0.940	0.000

Source: SPSS Primary Data

Based on the results of the paired t test, it shows that the value of Asymp.Sig. (2 tailed) of 0.000. It was concluded that 0.000 < 0.05, then there is a difference in knowledge between pre and post in the treatment group which means that there is an increase in knowledge in the treatment group.

3. Analyzing differences in adolescent knowledge of anemia prevention in the control group and the treatment group.

Table 6. Table of Post Independent T Test Results

	Levene's Test for Equality of Variances	t-test for Equality of Means	
	Sig	Sig. (2- tailed)	Mean Difference
POST	0.52	0.000	-3.40000

Source: SPSS Primary Data

Based on the results of the statistical test above, it can be seen that the value of Asymp.Sig. (2 tailed) on the independent t test of 0.000. It is concluded that if the value ofα0.000 < 0.05, then "The Hypothesis is Accepted". It can be said that there are differences in adolescent knowledge of anemia prevention in the control group and the treatment group. The table shows the mean difference value of -3.4000 which means the difference in the average knowledge between the control group and the treatment group. The negative value contained in the mean difference value indicates that the control group has a lower average value than the knowledge group which can be seen in the table of the average knowledge value.

Discussion

1. Identifying adolescent knowledge of anemia prevention in the control group

Based on identification data regarding adolescent knowledge of anemia prevention, the control group had different knowledge on pre and post knowledge. Even though this control group was not given any treatment by the researcher. The control group experienced an increase in knowledge with an average pre-test score of 11 points and an average post-test score of 12 points, indicating an increase of 1 point. This incident occurred because the control group had the characteristics of MIPA class respondents who had received material on health. In addition, at SMAN 3 Kediri City, there are also screening activities and UKS activities which are routinely carried out every semester to provide education or give blood-added tablets to young women. Although according to the puskesmas and the school, they provided information that during this pandemic there were no screening activities for students, the knowledge of teenagers in this control group increased. In addition to the screening activity and UKS activities that have been carried out, another factor, namely the pause during the pre and post test which is quite long, which is one day, has also resulted in an increase in knowledge. When giving the pause they can access and try to find information related to the questions that have been given during the pre-test. Another factor is that there is a pause when giving pre and post tests which are quite long, namely one day which also

results in an increase in knowledge. When giving the pause they can access and try to find information related to the questions that have been given during the pre-test. Another factor is that there is a pause when giving pre and post tests which are quite long, namely one day which also results in an increase in knowledge. When giving the pause they can access and try to find information related to the questions that have been given during the pre-test.

Some of the knowledge they did not know when filling out the pre-test such as "The cause of anemia is due to consuming tea" and "Prevention of anemia by increasing foods containing B12". Meanwhile, in the post-test the lowest scores were regarding "Malaria is the cause of adolescent anemia" and "Drinking tea can be the cause of adolescent anemia". This happens because the knowledge of anemia that they know is the understanding and signs of anemia symptoms that they get from everyday learning in class. They have not received more in-depth knowledge about anemia, either from screening activities or routine UKS activities.

In the results of research conducted by researchers, it is known that the minimum score for the control group is 4 points and the maximum is 18 points. Respondents who have the lowest score are respondents with social studies class characteristics. Classes majoring in social studies do not have subjects about health. They only obtain health information through screening activities or UKS activities carried out by the puskesmas and UKS officers. In addition, they can obtain information independently if they want to access health information through social media or the internet.

Increased knowledge of the control group also occurred in previous research conducted by Kholidatul 2018 regarding the effect of giving picture cards to school-age children regarding healthy snacking behavior. In line with the research of Vina Mahdalena et al (2017) showed that the knowledge of the group in their study also increased. It was explained that the increase in the control group was due to experiencing curiosity and curiosity and when filling out the second questionnaire (post test) respondents were more attentive and serious in doing their work.

This shows similarities with this study where the control group respondents who did not receive any treatment also experienced an increase in knowledge.

2. Identifying adolescent knowledge of anemia prevention in the treatment group

Data identification of adolescent knowledge in the treatment group obtained from the paired t test showed a significant increase in knowledge. The treatment group is a group that gets treatment in the form of educational videos through social media tik tok. The pre-test score in the treatment group was 13 points in the Mathematics and Natural Sciences class and 12 points in the Social Sciences class. On average, the respondents in the treatment group came from the Mathematics and Natural Sciences class who already had knowledge about natural sciences regarding health or about certain diseases. In addition, the pre-test scores were already good because there was a routine program before the pandemic from the local puskesmas and UKS that provided education or gave blood-added tablets to adolescent girls at SMAN 3 Kediri. This can be a good background knowledge of respondents.

After being given treatment, the treatment group experienced an increase in value, namely the MIPA class group had a post test score of 15 points and the IPS class had a post test score of 14 points. The treatment group with two different classes both experienced an increase of 2 points between the pre and post test scores. This is also shown by the results of the paired t test which shows a significant value$\alpha$of 0.000 which means that there is a difference in the value of pre and post test in this group.

The treatment group had the lowest score on the pre-test questionnaire on questions about "The cause of anemia is due to consuming tea" and "Prevention of anemia by increasing foods containing B12". After being given treatment in the form of a video containing the understanding, signs and symptoms, causes, impact and prevention of anemia, the treatment group had the lowest total questionnaire score, namely "Malaria is the cause of

adolescent anemia" and "Drinking tea can be the cause of adolescent anemia". Respondents still have a lack of knowledge about that if you drink tea after eating that contains iron, it will inhibit the absorption of iron in the body. Even though the video has explained about it. Respondents felt that this could not happen if someone consuming tea resulted in anemia,

One of the most popular social media among teenagers is Tik Tok. The social media contains some content whether it is used for entertainment, education or promotional media. Most of its users use tik tok social media to convey ideas submitted to other users. In addition, other users also use tik tok social media to promote themselves for endorsement purposes or introduce their identity through tik tok which is mostly done by teenagers (Adil Dimas Andrian, 2021).

Based on the theory above, it can be seen that the use of Tik Tok social media is very helpful in disseminating information to all groups, especially teenagers.

Providing education through various media can increase one's knowledge. As is the case with research conducted by Risma et al who used audio visuals to see the effect of providing education through audio-visual media on the knowledge and attitudes of overweight adolescents stated that they had an influence and increased their knowledge (Risma Meidina, 2018).

This is in accordance with research that has been carried out by Abna, Inherni Marti et al in 2021 which shows a significant value to one's knowledge through the education that has been given. Research that shows the same thing was also carried out by Zumrotul and Abdul in 2018 regarding the application of audio-visual media as an effort to increase the knowledge of Bandarjo Ungaran Barat Semarang teenagers showing a difference in knowledge before and after being given a video about HIV/AIDS with a significance value of 0.000.

Research conducted by Feri Ardiansah (2019) shows that giving videos in lessons can increase students' interest and results in learning. In this study, it has a significant value of 0.009 on student learning interest and a significant value of 0.008 on knowledge of student learning outcomes. It can be said that the provision of education can affect a person's knowledge and interests.

It can be concluded that providing education through tik tok social media can increase knowledge of someone who has received information through the provision of education.

3. Analyzing differences in adolescent knowledge of anemia prevention in the control group and the treatment group

The results of the Independent T test stated that there were differences in adolescent knowledge of anemia prevention in the control group and the treatment group with a sig value α 0.000.

Judging from these results, the knowledge of the treatment group who received education in the form of anemia prevention videos on tik tok social media had differences with the control group who did not receive any treatment. Although there is a not too much difference seen from the value of the increase in pre and post, the two groups have differences.

Between the treatment group and the control group, the average post-test distance between the two groups was 3 points. This shows that one's knowledge can increase if one receives knowledge or knowledge from various sources such as educational videos on social media tik tok. While the minimum post-test score in the treatment group is 9 points which can indicate that respondents can answer almost half of the questionnaire correctly. While the maximum post-test score in the treatment group is 20 points, which indicates that the respondent can answer all the questions correctly. In the control group, where the group did not receive treatment, the minimum post-test score was 4 points and the maximum post-test score was 18 points.

The average value in the two groups is the highest value in the treatment group. The treatment group has an average respondent with the characteristics of the MIPA class which can be seen that the MIPA class does gain more knowledge about health or other natural sciences. In addition to this, the existence of internet media makes it easy for someone to access the various knowledge they want to acquire.

The results that show that the T test results are significant are shown as previous research conducted by Luluk Fauziah (2018) which states that there are differences in scores in the group receiving additional education with significant scores.αof 0.004.

In the research that has been done, it is known that the value of knowledge before and after providing education through social media tik tok on the value of the 20 question questionnaire has increased in value on the number of questions 1,2,3,4,5,6,7,8,9,10, 11,12,13,14,15,17,18,19,20. While the value of knowledge remains on question number 16 regarding "Giving blood-added tablets can reduce the incidence of anemia" with a total score of 118 in both control and pre- and post-treatment groups.

Differences in knowledge due to several factors such as education, information or mass media, socio-cultural and economic and environmental. (Riyanto, 2013) In this study, the difference in knowledge between the treatment group and the control group was due to the information provided by the researcher through the tik tok social media educational video.

Based on previous research, it shows that access to social media and providing counseling has an impact on increasing knowledge (Sulistyoningtyas, Tamtono, & Suryani, 2016). As the results of research that have been carried out in this study, that the provision of educational videos has an impact on knowledge. There is an increase in the group control because the habit of accessing high social media can affect the information they get.

The difference in knowledge after giving treatment between the treatment group and the control group with post-test scores had an increase even though the control group did not receive treatment was also found in Alfiyan et al's 2014 study. The control group experienced an increase due to high curiosity about things they did not know. They can access this through various sources such as the internet, tik tok, youtube and google.

IV. Conclusion

This study used two tests, namely the Independent T test and the paired t test, which aims to determine the difference in knowledge before and after being given an educational video and the difference between the treatment and control groups. Based on the results of the study, there were differences between the control group and the treatment group with a sig value a of 0.000. It can be said that H0 is accepted. This difference occurred because the treatment group had received treatment in the form of an educational video. However, there was an increase in knowledge of 1 point in the control group because there was a one-day lag between the pre and post test, and the control group could take advantage of the time to access information during the break.

It is hoped that the puskesmas can increase knowledge in adolescents through providing more interesting education to adolescents. Through social media which is popular with teenagers and supported by interesting animated videos. Such as social media Tik Tok, Instagram and Facebook. The puskesmas can work with schools to be required to follow the puskesmas social media which aims to be able to see the latest posts about health education. The school can distribute counseling from the puskesmas on the school's official account. And can show counseling videos periodically during school events. Teenagers are expected to play an active role in increasing knowledge of anemia through various media. Like social media, tik tok, instagram or internet sources.

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