



**THE INFLUENCE OF THE USE OF WEBSITE MEDIA IN CREATING
ADOLESCENTS KNOWLEDGE ABOUT THALASSEMIA
AT SMAN 1 SINGAPARNA**

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ABSTRACT

Background: *Thalassemia is the most common global health problem in the world. Until now, the number of thalassemia sufferers is increasing. One way to prevent thalassemia is to provide education in areas that may experience thalassemia.***Research Objective:** *To determine the influence of the use of website media in increasing adolescents knowledge about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency.***Method:** *Using quantitative research with a quasy experimental research design with a pre-test post-test with control group design. The sampling technique used is a purposive sampling technique, namely simple random sampling with a sample of 68 people.***Results:** *An average score was obtained before treatment in the intervention group of 72.65 and after treatment was given 92.65. Meanwhile, the control group obtained an average score of 74.41 before treatment and 80.88 after treatment. The intervention group had a higher difference of 20.00 compared to the control group of 6.47. Based on the results of the paired sample t-test in both groups, the same value was obtained with a p value of $0.000 < 0.05$, then H_0 was rejected and H_a was accepted.***Conclusion:** *There is an effect of the use of website media on increasing adolescents knowledge about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency.***Suggestion:** *It is hoped that the next researcher can develop this research using other online media.*

Keywords : *Health Education, Thalassemia, Website, Knowledge*

ABSTRAK

Latar belakang: *Thalassemia merupakan masalah kesehatan global terbanyak di dunia. Sampai saat ini, jumlah penderita thalassemia semakin meningkat. Salah satu cara untuk mencegah thalassemia yaitu dengan memberikan edukasi di daerah-daerah yang mungkin mengalami thalassemia.***Tujuan Penelitian:** *Untuk mengetahui pengaruh penggunaan media website dalam meningkatkan pengetahuan remaja tentang thalassemia di SMAN 1 Singaparna Kabupaten Tasikmalaya.***Metode:** *Menggunakan penelitian kuantitatif dengan rancangan penelitian quasy experimental dengan desain pre test post test with control group. Teknik sampling yang digunakan adalah teknik purposive sampling yaitu simple random sampling dengan jumlah sampel 68 orang.***Hasil Penelitian:** *Didapatkan nilai rata-rata sebelum diberikan perlakuan pada kelompok intervensi 72,65 dan setelah diberikan perlakuan 92,65. Sedangkan kelompok kontrol didapatkan nilai rata-rata sebelum perlakuan 74,41 dan setelah perlakuan 80,88. Pada kelompok intervensi memiliki selisih nilai lebih tinggi 20,00 dibandingkan dengan nilai kelompok kontrol 6,47. Berdasarkan hasil uji paired sample t-test pada kedua kelompok didapatkan nilai yang sama dengan p value $0,000 < 0,05$ maka H_0 di tolak dan H_a diterima.***Kesimpulan:** *Terdapat pengaruh penggunaan media website dalam meningkatkan pengetahuan remaja tentang thalassemia di SMAN 1 Singaparna Kabupaten Tasikmalaya.***Saran:** *Diharapkan peneliti selanjutnya dapat mengembangkan penelitian ini dengan menggunakan media online lain.*

Kata Kunci : *Pendidikan Kesehatan, Thalassemia, Website, Pengetahuan*

INTRODUCTION

Thalassemia is the world's most common global health problem, caused by the bone marrow forming the protein needed to produce hemoglobin. Hemoglobin is an iron-rich protein that functions to transport oxygen from the lungs to the rest of the body (Supriatna et al., 2020). In some developing countries, the number of people with thalassemia is increasing as a result of improved health

management and a decrease in child mortality due to infections and malnutrition (Wulandari et al., 2023).

The treatment carried out for people with thalassemia depends on the type and severity, some of the treatments needed are blood transfusions, chelation therapy, stem cell transplantation, gene therapy, genome editing techniques, splenectomy, and cholecystectomy (Paloma, 2023). Currently, the most effective treatment is to perform blood transfusions for life with a hemoglobin level of at least 12 g/dl (Geovahni et al., 2023). People with thalassemia need about 550–600 blood flasks each month. The purpose of blood transfusions is to prevent complications and reduce the mortality rate of thalassemia sufferers by performing routine blood transfusions accompanied by iron chelation (Rediyanto, 2023).

As a treatment effort is carried out, to avoid the occurrence of new thalassemia, it is important to take precautions. There are several ways to prevent thalassemia, including primary, secondary, and tertiary prevention. The main principle for preventing the emergence of new thalassemia is to prevent the birth of thalassemia babies. One way to prevent thalassemia is to provide education in areas that may experience thalassemia (Mariani et al., 2022). Education is basically all planned efforts to influence, provide protection, assistance, so that participants have the ability to behave according to expectations (Maulana, 2009). Education is included in primary prevention (Setiawan et al., 2022).

The purpose of education is to increase knowledge about thalassemia. To increase public knowledge and awareness, especially in adolescents, as an anticipation that must be prepared so that adolescents are interested in screening for Thalassemia (Sukri, 2017). In the research of Setiawan et al., (2022), it is stated that there is no awareness and still low knowledge of adolescents in Indonesia about thalassemia disease.

Adolescence is very important, critical, and dangerous, because if a person goes through his or her teenage years unsuccessfully, they are at risk of future failure. Conversely, if adolescence is filled with productive and successful activities, they are at risk of future success. Teenagers can do thalassemia screening to find out whether a person carries the trait of thalassemia in the blood or not. The purpose of screening is to reduce the mortality and morbidity of thalassemia (Sukri, 2017).

To increase knowledge, there are several methods used, including using mass media (print and electronic), brochures, leaflets, and internet networks or websites (Mariani et al., 2022). A website is a collection of pages that contain information in the form of digital data such as text, audio, images, videos, and animations and can be accessed through the internet. Websites have advantages, such as being easy to access, not requiring a lot of storage, and being accessed using desktops and mobile phones. When compared to applications, websites are easier to use because they rely on browsers or search engines that are already installed on Android devices and the iPhone Operating System (IOS) (Lolita et al., 2023). In the research of Sadikin et al., (2020) it shows that, after being tested for feasibility, website media is suitable for use as a learning medium in schools or independently, with a percentage of 90%.

There are several studies on education, that have been carried out so that they get significant results. The research of Mariani et al., (2022) showed that after health education was carried out, there was an increase in the level of knowledge of respondents, as evidenced by the average pre-test, which was 74, and the post-test, which was 81.79. Geovahni et al., (2023) found that there was an influence of health education on pocket book media, as evidenced by the increase in adolescent knowledge with a nilai p value of 0.000. Research by Modal et al., (2018) that thalassemia screening is acceptable and is the most effective strategy to control thalassemia in developing countries, with a pre-test score of 28.25% and a post-test score of 78.6%.

The World Health Organization (WHO), reports that 7% of the world's population has the thalassemia gene (Hastuti et al., 2023). About 300,000 to 500,000 babies have severe hemoglobin abnormalities at birth, and thalassemia causes 50,000 to 100,000 deaths each year (Paloma, 2023). Indonesia is a country with one of the highest frequencies of thalassemia genes or carriers. An epidemiological study conducted in the country found that the frequency of the beta thalassemia gene ranges from 3% to 10%. According to the Indonesian Thalassemia Foundation, the number of thalassemia cases continues to increase every year. In Indonesia, there were 10,973 cases of

thalassemia from 2012 to June 2021 (Paloma, 2023). Based on recapitulation data from the 2023 Tasikmalaya Parents Association of Thalassemia Patients (POPTI), the thalassemia prevalence in Tasikmalaya City and Regency is 256, 87 people with thalassemia in Tasikmalaya City, and 169 people with people in Tasikmalaya Regency. With the most cases in Tasikmalaya Regency, precisely in Singaparna District, which amounted to 14 people with thalassemia.

The results of the preliminary study on Wednesday, January 17, 2024, which was carried out on students of class XII SMAN 1 Singapore, revealed that 9 out of 10 female students did not know about thalassemia, while the rest only knew about the meaning of thalassemia. The source of information that is often used by SMAN 1 Singapore students is the internet network or website media.

Thus, the researcher is interested in conducting research to determine the influence of website media on the increase of adolescent knowledge about thalassemia, which can be measured by using a questionnaire about knowledge before and after health education about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency. With the existence of this website about thalassemia, it is hoped that it can increase the knowledge of adolescents by preventing the emergence of new thalassemia cases.

The general purpose of this study is to determine the influence of the use of website media on increasing adolescents' knowledge about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency. The benefits of this research are that it is expected to increase knowledge in adolescents about thalassemia at SMAN 1 Singapore and can be used as input by conducting education using online media in an effort to prevent health problems related to thalassemia.

METHOD

Participant characteristics and research design

This type of research is using quantitative research with a quasi-experimental research design to find out whether or not there is an influence on the use of website media given by involving the intervention group and the control group, using a pre-test-post design with control group. With the characteristics of SMAN 1 Singaparna adolescent respondents, students who are willing to become research respondents, and students who have gadgets.

Sampling procedures

The sampling technique used is a purposive sampling technique, namely simple random sampling. Simple random sampling is a sampling method for a population using the Isaac and Michael formulas. Sampling was carried out with the help of the deputy principal, who recommended class XII in accordance with the inclusion criteria that had been determined by the researcher.

Sample size, power, and precision

The number of samples in this study is 68 respondents. To collect respondent data, the tool used by the researcher is a questionnaire that contains several questions. Using a previous research questionnaire conducted by Mariani et al., (2022) it has been tested for reliability with an r value: 0.87. The research questionnaire used consisted of 20 questions about the definition, signs and symptoms, classification, treatment, and prevention of thalassemia. This questionnaire is given before health education is carried out and after health education is given.

In the health education intervention group, it was carried out using website media. The website contains text equipped with images and videos with a duration of 02.20 minutes. The content of the text is to explain the definition, signs and symptoms, causes, classification, treatment, and prevention of thalassemia. Functions as a medium of delivery if the use of the text is felt to be poorly understood. This media is provided through a link displayed by the researcher in focus, which is then read by the respondents, and then the respondent watches the video. Meanwhile, the control group only uses the lecture method.

Measures and covariates

The data sources in this study used primary and secondary data. The primary data for this study was obtained from the results of questionnaires and interviews, this data was obtained by the researcher himself with the results of measurements, observations, and surveys. Meanwhile, the secondary data in this study was obtained from the deputy principal of SMAN 1 Singaparna, Tasikmalaya Regency, namely the number of students from grades X, XI, and XII.

The method used for the reliability of data collection carried out by researchers is to create a group chat that aims to send links and make it easier to communicate. To ensure that the intervention group accesses the website media by means of the YouTube video comments contained in the website media.

Data analysis

The data analysis in this study is univariate analysis and bivariate analysis.

Univariate Analysis

The univariate analysis of this study is to see an overview of the frequency distribution and percentage of gender variables, parents' last education, information sources, and socio-economics.

Bivariate Analysis

Before data analysis, each data variable was tested for normality using the Skewnes/Standard Error test. The test used on paired samples is a paired sample t-test, which aims to find out the difference between the pretest and posttest in each group. To test the hypothesis on the dependent sample because the data is normally distributed, the parametric test or the dependent T test is used.

RESULTS AND DISCUSSION

This research was carried out from March 21 to March 27, 2024. On the first day of the study, respondents filled out informed consent first. Then the respondents fill in the attendance list that has been provided by the researcher. Of the 68 respondents, they were divided into 2 groups, namely the control group and the intervention group. Then the researcher created a group chat that aims to make it easier to communicate and to send the link that the researcher has provided. Respondents did the pre-test together, but in different classes, namely the intervention group with the researcher and the control group with the research assistant. Then it was continued with the provision of education using website media in the intervention group, while in the control group using the lecture method.

After providing education to the control group, a post test was carried out to see if there was an effect on the lecture given to the control group. Meanwhile, in the intervention group, website media were given for students to access, which contained the definition, signs and symptoms, causes, treatment, and prevention of thalassemia in the form of text and video. After being educated through the website media, the students were given time to re-understand and watch the video for 1 hour, after which a post test was carried out, which aimed to find out if there was an influence on the use of website media to increase knowledge or not. Then, on the next day, in the intervention group, the researcher reminded and re-evaluated related website media through a group chat that had been made by the researcher.

Respondent characteristics by gender

Table 1
Gender Of Respondents

Characteristic	Intervention Groups		Control Group	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Gender				

Woman	24	70,6	23	67,6
Man	10	29,4	11	32,4
Sum	34	100,0	34	100,0

Based on Table 1, the number of women is more than the number of men, both in the intervention group and the control group. In the intervention group, there were 24 women (70.6%) and 10 men (29.4%). Meanwhile, in the control group, there were 23 people (67.6%) and 11 men (32.4%).

Based on further analysis of differences in comprehension levels, women have higher intelligence than men, characterized by physical and psychological differences caused by gender in the eyes, brain, and working memory, which has an impact on the cognitive load of men and women in seeing and storing information in the learning process (Anwar et al., 2019). This is in line with the research of Setiawan et al., (2022) showing that women have a higher level of knowledge than men, namely 72% of women and 28% of men. In line with the research of Sabarudin et al., (2020), the level of knowledge of women (60.8%) is higher than that of men (39.2%).

Characteristics of respondents based on parents' last education

Table 2
Parents' Last Education

Characteristic Parents' Last Education	Intervention Groups		Kelompok Kontrol	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
No School	-	-	-	-
SD	2	5,9	3	8,8
SMP	4	11,8	1	2,9
SMA	13	38,2	15	44,1
D3	2	5,9	2	5,9
S1	11	32,4	10	29,4
S2	2	5,9	3	8,8
Sum	34	100,0	34	100,0

Based on Table 2, the results of 68 respondents were obtained, and the last education of parents in the intervention group and the control group was the highest, namely high school. In the intervention group, there were 13 people (38.2%), while in the control group, there were 15 people (44.1%).

With high parental awareness, more information will be obtained, so that the level of parental ability can increase and also encourage children to seek information about thalassemia. In line with the research of Kusumah and Hasibuan., (2021), a low level of knowledge and education can be one of the factors causing the high number of cases of a disease. In the research of Anugrahaeni et al., (2022) showed that the level of parental education can affect the level of knowledge, the occurrence of a disease in children is caused by the low education of parents who do not understand the provision of good nutrition and lack of behavior in keeping their children healthy.

Characteristics of respondents based on information sources

Table 3
Resources

Characteristic Resources	Intervention Groups		Control Groups	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Website/blog	21	61,8	24	70,6
Instagram	-	-	-	-
Tiktok	4	11,8	2	5,9
Youtobe	7	20,6	6	17,6
Book	2	5,9	2	5,9
Other	-	-	-	-
Sum	34	100,0	34	100,0

Based on Table 3, the results of 68 respondents were obtained. The source of information used by the most respondents was websites or blogs, both in the intervention group and the control group. In the intervention group, there were 21 people (61.8%), while in the control group there were 24 people (70.6%).

In the research of Rahmandiani et al., (2018) it is stated that factors that can affect knowledge are education, employment, and sources of information. Respondents with less knowledge can be caused by the lack of information obtained. In line with the research of Utari et al., (2020) it was found that there is a relationship between respondents' information sources and knowledge. The most widely used source of information for respondents was through electronic media with a percentage of 70.1%.

Characteristics of respondents based on socio economics

Table 4
Socio-Economic

Characteristic Socio-Economic	Intervention Groups		Kelompok Kontrol	
	Frequency (N)	Percentage (%)	Frequency (N)	Percentage (%)
Height : > 2.500.000	16	47,1	25	73,5
Low : < 2.500.000	18	52,9	9	26,5
Sum	34	100,0	34	100,0

Based on Table 4, the results were obtained in the intervention group with the highest socioeconomic low, namely < 2,500,000 which amounted to 18 people (52.9%). Meanwhile, the control group with the highest socioeconomic > was 2,500,000, for a total of 25 people (73.5%).

In line with the research of Faraski et al., (2023) there is a relationship between the level of parental knowledge and economic status, with a low socioeconomic impact on the costs that must be incurred for thalassemia children. In the research of Suryani et al., (2020) it is shown that there is a relationship between socio-economics and knowledge. Respondents with high incomes did not suffer from the disease because parents had high knowledge so that they could buy and prevent disease by facilitating healthy and nutritious food.

Bivariate Analysis

Average level of knowledge before and after health education

The researcher first conducted a data normality test using the Skewness value divided by the standard error with a normal range of -2 to 2. So, it was found that the data in this study was normally distributed.

Table 5
Average Knowledge Level

Level of Knowledge	Intervention Groups		Control Groups	
	Pre Test	Post Test	Pre Test	Post Test
Good	32,4%	100%	35,3%	61,8%
Enough	61,8%	-	64,7%	38,2
Less	5,9%	-	-	-
Total	100%	100%	100%	100%

Based on table 5, it was found that the average level of knowledge increased after being treated in both the intervention group and the control group. The pre-test scores of the intervention group were categorized as good (32.4%), fair (61.8%) and low (5.9%). Meanwhile, the pre-test scores of the control group were categorized as good (35.3%) and fair (64.7%). The post test scores in the two groups were most categorized as good, but the intervention group was higher with a percentage of 100% compared to the control group of 61.8%.

The increase in the average value of respondents' knowledge after being given education occurred because it was influenced by several factors, one of which was information. Information obtained from mass media affects the cognitive and affective responses of respondents (Pratama, 2014). In their research, Fitriyani and Kurniasari, (2022) stated that adolescent education can have the potential to benefit from internet-based media, one of which is websites. The results of the study show that website media can increase students' knowledge. This shows that website media is a good health education support media to use because it is easy to find information, can be accessed anytime, anywhere and by anyone without restrictions, but still must have an internet quota.

The Influence of Website Media Use on Increasing Knowledge

Table 6
The Influence Of Media Use Websute

Knowledge Variables	N	Mean	Different Mean	t	Std. Deviation	P. Value
Intervention Groups						
<i>Pre Test</i>	34	72,65	20,00	-12,440	10,018	0,000
<i>Post Test</i>	34	92,65			4,478	0,000
Control Groups						
<i>Pre Test</i>	34	74,41	6,47	-5,739	8,683	0,000
<i>Post Test</i>	34	80,88			5,290	0,000

Based on Table 6, the average score before being given health education with website media in the intervention group was 72.65 and after being given health education with website media was 92.65 with a p value of 0.000. The intervention group had a higher value difference of 20.00

compared to the control group's value difference of 6.47. Based on the results of the paired sample t-test with a p value of $0.000 < 0.05$, H_0 was rejected and H_a was accepted, so it can be concluded that there is an influence of the use of website media in increasing adolescents' knowledge about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency.

In the research of Lathifah and Prastowo, (2020) it is shown that website media is proven to increase student knowledge, besides that, it can also take advantage of existing technology. Research by Danaswari and Gafur, (2018) shows that website media is suitable to be used as a learning medium to increase adolescent knowledge and become a learning motivation for students. In line with the research of Januarisman and Ghufro, (2016) it was found that website media is able to attract students' interest as a learning medium so that it can increase knowledge and website media It has also been tested with results that are very feasible to use.

CONCLUSIONS

The characteristics of respondents based on gender of the 68 respondents were 47 women, based on the last education of the most parents who graduated from high school with a total of 28 people, based on information sources that are often used by the most respondents using website media with a total of 56 people, and based on socio-economics, the most intervention groups were in the low category with 18 people, while the control group with the most in the high category was 25 people.

The average score of knowledge before being given health education using website media in the intervention group was in the most adequate category of 21 people (61.8%) and after being given the most good category with a total of 34 people (100%). Meanwhile, in the control group, before being given the most health education in the adequate category, with a total of 22 people (64.7%) and after being given the most in the good category, with 21 people (61.8%). This shows that there is an increase in knowledge before and after health education is given, both in the intervention and control groups. However, the intervention group had a higher difference than the control group.

Website media can have an effect on increasing student knowledge obtained by the results of each group with a p value of $0.000 < 0.05$, so there is an influence of the use of website media in increasing adolescents' knowledge about thalassemia at SMAN 1 Singaparna, Tasikmalaya Regency.

SUGGESTIONS

For Research Sites

It is hoped that it can be an input for the school in efforts to prevent thalassemia health problems to conduct counseling using the media, especially with online media, to students and can collaborate with health workers about thalassemia.

For Health Education

It is hoped that this research can be a source of reference for health education, especially for lecturers, and that nursing students can develop nursing science in educating about thalassemia through the development of online media such as TikTok, YouTube, and so on.

For the next researcher

It is hoped that the next researcher can develop this research and use it as a source to conduct research by comparing and using other media, not only website media but also other online media such as TikTok, YouTube, and so on. It is recommended that the measurement of knowledge be longer than just one day.

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Conflict of Interest Statement

There are no other interests that are harmed by the writing of this study. This means that it does not have any detrimental impact on the subject of the researcher, the institution where the research is conducted, or the institution.

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