



# Dental Health Educational: Media Videos and Animated Videos on Increasing Dental and Oral Health Maintenance Behavior

Suwarsono<sup>1\*</sup>, Lilis Ayu Safitri<sup>2</sup>, Lanny Sunarjo<sup>3</sup>

<sup>1,2,3</sup>Department of Dental Health, Semarang Health Polytechnic, Indonesia

## ARTICLE INFO

### Article history:

Received: August 6, 2023

Revised: August 25, 2023

Accepted: September 5, 2023

Available online: September 6, 2023

### Keywords:

Dental Health Education, Videos, Animated Videos, Behavior



This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.

Copyright © 2023 by Author. Published by Center of Excellent (PUJ) Poltekkes Kemenkes Jakarta I, Indonesia

## ABSTRACT

Dental health education in children is an effort that can emotionally eliminate fear, want to observe, and foster curiosity so that children physically perform activities that are demonstrated for their health. The selection of dental health education media must be considered in detail and carefully so that the media displayed can have an effect on increasing children's behavior in maintaining oral health. The purpose of this study was to determine the difference in the effectiveness of dental health education with dental health education video media and animated videos on improving the oral health maintenance behavior of 4-5 grade students of Brebes 14 State Elementary School. Research Methods Quasi experimental with pre and post-test design with Two Group Design. The sample used in this study was 60 students of Brebes 14 State Elementary School with purposive sampling technique. Data analysis using univariate and bivariate analysis, namely the Wilcoxon test to prove whether there is a change in oral health maintenance behavior before and after being given dental health education and the Mann-Whitney test to determine the effectiveness of the two dental health education media. The results of the Wilcoxon test showed that the average value of dental health maintenance behavior with dental health education video media was 47.3. Dental health maintenance behavior with animated video media is 43.9. And the Mann-Whitney test results show significant results  $p\text{-value} = 0.000 < 0.05$ . It can be concluded that dental health education with dental health education video media is more effective in improving oral health maintenance behavior compared to using animated video media with a  $p\text{-value} < 0.05$ .

## INTRODUCTION

Dental and oral health is one of the health problems in Indonesia. This can be seen from the results of basic health research in 2018, as many as 57.6% of the community experienced dental health problems. From these results, only 2.8% of the Indonesian population aged three years and over already have the correct tooth brushing behavior in frequency and time, namely twice a day, morning and evening. (Riskasdas, 2018). The high number of dental and oral health problems is caused by a lack of community behavior in maintaining dental and oral health.

The prevalence of tooth brushing behavior every day among residents aged  $\geq 3$  years in Brebes Regency reaches 95.01%, but the prevalence of tooth brushing behavior in the right way and time is only 0.56%, this figure shows that it is still below the national rate. This happens because there are still many people who do not have knowledge about oral health, especially about the right way and time to brush their teeth (Riskasdas, 2018).

Dental health education in children is an effort that can emotionally eliminate fear, want to observe, and foster curiosity and in the end the child physically performs the activity that is demonstrated so that it is good for his own health. In addition, it aims to introduce children to everything related to dental health, so that children are able to maintain dental health by training their limbs according to their abilities and get good cooperation from children when children need treatment for their teeth (Sari et al., 2021).

Counseling is the method most often used in dental and oral health education (Sari et al., 2021). The selection of media in providing dental health education must also be considered in detail and mature so that the media displayed can influence the improvement of children's behavior in maintaining dental health

\*Corresponding author.

E-mail addresses: [suwarsono@poltekkes-smg.ac.id](mailto:suwarsono@poltekkes-smg.ac.id)

(Kristianto et al., 2018). In the use of methods for counseling there are lots of media that can be chosen to be used, one of which is the use of media in the form of video (Sari et al., 2021).

Video is a combination of audio and images combined into a moving image. Video media is intended to simplify and clarify the delivery of messages so that they can overcome the limitations of time, space and target senses so that they can be carried out accurately and in a variety of ways (Rusmiati & Marlia, 2019). According to Daryanto, the advantage of using video media is that the video display can be flexible and easy to adjust according to needs, the delivery of information presented can be conveyed in a straightforward and direct manner so that students can more easily understand. Videos can be played back according to need, presentations that are practical and entertaining make it easier for the target to capture each material. Interesting pictures and delivery also make the target more interested so that the process of capturing the knowledge provided will be more (Shah et al., 2016). In addition, according to Rusman in (Wiradona et al., 2022) Counseling with video can stimulate respondents to information that will be remembered and stored so that it can improve one's cognitive. Videos take various forms, some of which are dental health education videos and animated videos.

Dental health education video media is a series of audio visuals which contain pictures, sounds and human figures as guides or messengers. The advantage of this dental health education video is that the video display is more realistic because it uses humans in it, the video can also clarify what material you want to convey. The weakness is that the guide or giver of the material must be able to master the material presented and the language must be easy for the audience to understand, and it takes a long time to make because it has to combine components, namely images and sound (Anggreni et al., 2022; Erdiyani et al., 2023).

Animated video is a combination of audio and images originating from objects that are specially arranged so that they move according to a predetermined path at each time connection. In essence, the creator determines the time of the movement of the animation (Mulyati, 2022). The advantages of animated videos are that the images displayed are more attractive because they contain moving cartoons, so students will find it easier to remember the material presented and not get bored quickly. The drawback is that it takes quite a long time to make it because you have to combine all the components, namely images and sound (Purnama et al., 2022).

## **METHOD**

This type of research is quantitative research research data in the form of numbers and analysis using statistics. The type of research used is quasi-experimental (quasi experiment). It is called a quasi-experiment because this experiment does not yet or does not have the characteristics of the actual experimental design, because the variables that should be controlled or manipulated cannot or are difficult to do (Notoatmodjo, 2018). In this study using a pre and post test design with Two Group Design which will be treated in different groups with 2 counseling media to find out the differences before and after counseling. Where group A will be given counseling media with dental health education videos and group B will be given educational video animation media.

This research will be conducted at SD Negeri Brebes 14 with a total of 60 students. In this study the number of samples was divided into 2 groups, each group numbering 30 students where the sample was determined using the slovin formula. The researchers in this study used a purposive sampling technique, with inclusion criteria: Present at the time of the study, cooperative when the research was conducted, willing to participate in the research to be carried out.

The instrument used in collecting data was a questionnaire. The validity test of the questionnaire was carried out at SD Negeri Brebes 10 in April 2023. The results of 10 questions about knowledge, attitudes and actions to maintain dental and oral health are valid with a p value <0.05. The results of the Reliability Test of Research Instrument Questions obtained knowledge (p=0.772), attitude (p=0.703) and action (p=0.733), meaning that all instruments were reliable.

Data analysis used the nonparametric statistical test or the Wilcoxon test, which is used to determine the increase in dental and oral health maintenance behavior before and after being given treatment in each group. After the Wilcoxon test was carried out, the Mann Whitney test was then carried out to find out the differences in the effectiveness of dental health education video media and video animation media on increasing dental and oral health maintenance behavior in the two treatment groups.

## **RESULT**

The results of this study present an analysis of the effectiveness of dental health education with the media of dental health education videos and animated videos on increasing dental health maintenance

behavior in students in grades 4-5 of SD Negeri Brebes 14. Respondents in this study were students of SD Negeri Brebes 14 with a total of 60 student. Respondents were divided into 2 groups, namely 30 grade 4 students in the animation video group and 30 grade 5 students in the dental health education video group. Then after processing the data obtained the following results:

**Table 1.** Knowledge before and after dental health education using dental health education videos and animated videos

Group		Before	After	Difference
Dental health education video	Knowledge	6.8	9.5	2.7
	Attitudes	25.7	29.3	3.6
	Action	7	8.5	1.5
	<b>Total</b>	39.5	47.3	7.8
Animation video	Knowledge	7.2	8.5	1.3
	Attitudes	27.1	28	0.9
	Action	6.4	7.4	1
	<b>Total</b>	40.7	43.9	3.2

Based on the table above, it shows that there are changes in behavior before and after dental health education with the media of dental health education videos and animated videos. In the dental health education video media, knowledge changes before and after being given dental health education with an average prior knowledge of 6.8 and after the change becomes 9.5 with a difference of 2.7, for attitudes before giving dental health education is 25.7 and after a change to 29.3 with a difference of 3.6. As for the action before the change with a value of 7 and after the change became 8.5 with a difference of 1.5.

In animation video media it is known that there is a change in knowledge before and after being given dental health education with an average prior knowledge of 7.2 and after there is a change to 8.5 with a difference of 1.3, for attitudes before the change in giving dental health education is 27.1 and after a change to 28 with a difference of 0.9. As for the action before the change with a value of 6.4 and after the change became 7.4 with a difference of 1.0.

In order to prove the assumption that there is or is not an increase in dental and oral health maintenance behavior in students of grades 4-5 at SD Negeri Brebes 14 in dental health education by researchers towards these two groups, it is followed by a non-parametric different test, namely the Wilcoxon test. The results of the different test between groups using the Wilcoxon test can be seen in the table below:

**Table 2.** Difference Test Results Between Before and After in the Dental Health Education Video Group

Variabel		p-value
Knowledge	Before	0.000
	After	
Attitudes	Before	0.000
	After	
Action	Before	0.000
	After	

Based on the analysis of the table above, it shows that the results of the Wilcoxon Test have a p-value of 0.000 ( $<0.05$ ). So it can be concluded that  $H_0$  is rejected, which means that there are differences before and after dental health education with dental health education video media towards improving dental and oral health maintenance in students in grades 4-5 SD Negeri Brebes 14.

**Table 2.** Difference Test Results Between Before and After in the Animation Videos Group

Variabel		p-value
Knowledge	Before	0.000
	After	
Attitudes	Before	0.000
	After	
Action	Before	0.000
	After	

Based on the analysis of the table above, it shows that the results of the Wilcoxon Test have a p-value of 0.000 ( $<0.05$ ). So it can be concluded that  $H_0$  is rejected, which means there are differences before and after dental health education with animated video media towards improving dental and oral health maintenance in grades 4-5 SD Negeri Brebes 14.

Based on the results of the analysis of the Wilcoxon test in the dental health education videos and animation video groups with available data ordinal data and unpaired samples, the next test is the Mann-Whitney test. The Mann-Whitney test was used as a comparison to find out whether there were differences in dental health maintenance behavior in grade 4-5 students of SD Negeri Brebes 14 after being given different interventions in each group between the difference in pre-test and post-test scores in the dental health education video group and animation videos. The basis for making decisions is based on the p-value, if the p-value is  $> 0.05$  then  $H_0$  is accepted meaning there is no difference, otherwise a p-value  $<0.05$   $H_0$  is rejected meaning there is a difference.

**Table 4. Results of Different Group Tests with Dental Health Education Video Media and Animation Videos**

Group	P-Value
Dental health education video	0.000
Animation video	

Based on the table above, the Mann-Whitney test results show a p-value of 0.000 ( $<0.05$ ). So it can be concluded that  $H_0$  is rejected, which means that there are differences before and after dental health education with dental health education video media and animated videos on dental and oral health maintenance behavior in grade 4-5 students of SD Negeri Brebes 14.

## DISCUSSION

Based on the results of research using dental health education video media conducted on 30 students at SD Negeri Brebes 14, most of them had a level of knowledge in the sufficient category, 16 students with a total percentage of 53.3%, then after being given dental health education video viewing, the level of knowledge changed, students who were initially in good category increased from 8 to 28 students. This is also proven by the Wilcoxon test, which shows that there are differences in the value of knowledge from before and after counseling where the p-value = 0.000  $<0.05$ . With dental health education using dental health education videos, Brebes 14 Public Elementary School students are reminded about dental and oral health material, so that it helps students know how to maintain healthy teeth and mouth again. After counseling the level of student knowledge increased, indicated by the answers to structured questions. Grade 5 students at SD Negeri 14 knew more about the importance of maintaining oral and dental health including brushing time, food that is good for dental health, and the consequences of not maintaining dental and oral health. This is inseparable from the use of proper and appropriate dental health education media, this dental health education uses dental health education video media. This is reinforced by the results of previous research that using video media is significantly more effective in increasing knowledge of dental and oral health in children (Kantohe et al., 2016).

Then, based on the results of research conducted on 30 students at SD Negeri Brebes 14, most of them had an adequate level of attitude, namely 12 students with a total percentage of 40%. Then after being given dental health education videos, the attitude level changed, students who were initially in the good category increased from 8 to 27 students. This is also proven by the Wilcoxon test, which shows that there are differences in attitude values before and after dental health education where the p-value = 0.000  $<0.05$ . This is because during the presentation of dental health education video media during dental health education the delivery of material was carried out by showing real pictures of healthy teeth and those who had experienced caries, so that they would know the condition of their teeth if they did not want to maintain healthy teeth and mouth. This attitude comes from the positive reactions shown by children who are obtained from knowledge that results in a willingness to carry out dental and oral health care. The results of this study are in accordance with previous studies which state that children's attitudes are influenced by their knowledge of dental health and dental and oral hygiene (Nurianti & Bako, 2018). That way children are advised to learn about maintaining oral and dental health as early as possible so that children get used to caring for their teeth independently.

Based on the results of research conducted on 30 students at SD Negeri Brebes 14, most of them had an adequate level of action, namely 14 students with a total percentage of 46.7%. Then after being given dental health education videos, the level of action changed, students who were initially in the good category

increased, from 12 to 23 students. This is also proven by the Wilcoxon test, which shows that there are differences in the value of the action from before and after counseling where the  $p\text{-value} = 0.000 < 0.05$ . This means that the dental health education video media has an increasing influence on behavior and after dental health education by showing dental health education videos, grade 5 students at SD Negeri Brebes 14 are considering starting to take real action in maintaining dental and oral health. The study in Tasikmalaya is in line with this research, that after dental health education was carried out an increase in actions to maintain dental and oral health includes how to brush your teeth every day after eating and before going to bed in a good and correct way, using toothpaste that contains fluorine. Adjust your diet and do periodic dental checks every 6 months to the dentist (Anang & Robbihi, 2021). By obtaining an increased level of knowledge, attitude and action, behavior change will occur if it is supported by adequate facilities and infrastructure, for example parental support and the role of health workers to provide regular dental health education with interesting media.

Based on the results of research using video animation media conducted on 30 students at SD Negeri Brebes 14, most of them had a level of knowledge in the sufficient category, 18 students with a percentage of 60%, then after being given the animated video, the level of knowledge changed, students who were initially in the good category increased from 10 to 24 students. This is also proven by the Wilcoxon test, which shows that there are differences in the value of knowledge from before and after counseling where the  $p\text{-value} = 0.000 < 0.05$ .

Then, based on the results of research conducted on 30 students at SD Negeri Brebes 14, most of them had an adequate level of attitude, namely 13 students with a total percentage of 43.3%. Then after being given dental health education videos, the attitude level changed, students who were initially in the good category increased, from 12 to 18 students. This is also proven by the Wilcoxon test, which shows that there are differences in attitude values before and after dental health education where the  $p\text{-value} = 0.000 < 0.05$ .

Based on the results of research conducted on 30 students at SD Negeri Brebes 14, most of them had an adequate level of action, namely 21 students with a total percentage of 70%. Then after being given dental health education videos the level of action changed, students who were initially in the good category increased, from 3 to 12 students. This is also proven by the Wilcoxon test, which shows that there are differences in the value of the action from before and after counseling where the  $p\text{-value} = 0.000 < 0.05$  which means that there is a significant difference between the increase in behavior before and after being given dental health education with animated video media.

Based on the results of the study using the Mann-Whitney test, it was found that the increase in dental health maintenance behavior scores of students who were given dental health education using dental health education video media was 7.8. Meanwhile, the average value of the increase in dental health maintenance behavior scores of students who were given dental health education using animated video media was 3.2. These results indicate that changes in dental health maintenance behavior of students who are given dental health education with dental health education video media are greater than those with animated video media. This is evidenced by the results of the  $p\text{-value}$  for the dental health maintenance behavior variable of  $0.000 < 0.05$ . This shows that there is a significant difference in the effectiveness of dental health education video media and animated video media on increasing dental health maintenance behavior in students in grades 4-5 SD Negeri Brebes 14.

This is in accordance with Nugraha (2021) which states that educational video media is effective in increasing dental and oral health maintenance behavior compared to animated video media. This is because the visualization of dental health education videos is more varied so students are more interested and the material presented is easy to understand.

## CONCLUSION

Based on the results of the study, it can be concluded that dental health education using dental health educational video media is more effective in increasing dental and oral health maintenance behavior compared to using animated video media..

## REFERENCES

- Anang, A., & Robbihi, H. I. (2021). Hubungan Pengetahuan dengan Perilaku Kesehatan Gigi dan Mulut. *Jl-KES (Jurnal Ilmu Kesehatan)*, 4(2), 55–59. <https://doi.org/10.33006/ji-kes.v4i2.176>
- Anggreni, E., Pudentiana Rr, R. E., Amelia, R., & Purnama, T. (2022). Video Media and Flipchart on Dental Health Knowledge. *International Journal of Multidisciplinary Research and Analysis*. <https://doi.org/10.47191/ijmra/v5-i12-24>

- Erdiyani, T., Purnama, T., Emini, E., & Nurilawaty, V. (2023). Videoscribe as an innovative media for dental health education. *Journal Center of Excellent: Health Assistive Technology*, 1(1), 12–16. <https://doi.org/10.36082/jchat.v1i1.1016>
- Kantohe, Z. R., Wowor, V. N. S., & Gunawan, P. N. (2016). Perbandingan efektivitas pendidikan kesehatan gigi menggunakan media video dan flip chart terhadap peningkatan pengetahuan kesehatan gigi dan mulut anak. *E-GIGI*, 4(2), 7–12. <https://doi.org/10.35790/eg.4.2.2016.13490>
- Kristianto, J., Priharti, D., & Abrial, A. (2018). Efektifitas Peyuluhan Kesehatan Gigi Dan Mulut Dengan Media Video Melalui WhatsApp Dalam Meningkatkan Derajat Kesehatan Gigi Dan Mulut Di Panti Asuhan Yos Sudarso Jakarta. *Quality : Jurnal Kesehatan*, 12(1), 8–13. <https://doi.org/10.36082/qjk.v12i1.24>
- Mulyati, A. (2022). *Dalam Renungan Sehimpun Esai Pendidikan Merdeka Belajar*. CV Jejak (Jejak Publisher).
- Nugraha, R. F. (2021). *Efektivitas Promosi Kesehatan Melalui Video Edukasi Sebagai Pembentukan Perilaku Menjaga Kesehatan Gigi Dan Mulut Pada Sdn Pudak Payung 01 Kota Semarang*. Skripsi tidak diterbitkan, Program Strudi Keperawatan Gigi, Poltekkes Kemenkes Semarang.
- Nurianti, I., & Bako, A. D. M. (2018). Hubungan Perilaku Tentang Kesehatan Gigi Dan Mulut Dengan Kejadian Karies Gigi Anak Di Sd Cinta Rakyat 4 Kelas Iv Dan V. *Jurnal Penelitian Kesmasy*, 1(1), 9–13. <https://doi.org/10.36656/jpkpsy.v1i1.34>
- Purnama, T., Sasongko, B. G., & Permatasari, L. (2022). Media Animated Video Versus Dental Phantom Dolls on Teeth Brushing Skills in Preschoolers: Which is More Effective? *International Journal Of Drug Research And Dental Science*, 4(3), 20–27. <https://doi.org/10.36437/ijdrd.2022.4.3.D>
- Riskesdas. (2018). Laporan Provinsi Jawa Tengah Riskesdas 2018. In *Kementerian Kesehatan RI*.
- Rusmiati, R., & Marlia, L. (2019). Pengembangan Booklet Dan Video Edukasi Kesehatan Gigi Dalam Menurunkan Derajat Kebersihan Gigi Dan Mulut Pada Anak Kelas V Sd. *Jurnal Bahana Kesehatan Masyarakat (Bahana of Journal Public Health)*, 3(1), 35–42. <https://doi.org/10.35910/jbkm.v3i1.192>
- Sari, A., Shelly, F. M., Moh. Adam, A., & Aminah, S. (2021). *Edukasi Kesehatan Gigi Dan Mulut Terhadap Anak Di Kampung Poncol Kecamatan Karang Tengah Tangerang*.
- Shah, N., Mathur, V., Kathuria, V., & Gupta, T. (2016). Effectiveness of an educational video in improving oral health knowledge in a hospital setting. *Indian Journal of Dentistry*, 7(2), 70. <https://doi.org/10.4103/0975-962x.184646>
- Wiradona, I., Setyowati, F. I., Sadimin, S., Utami, W. J. D., & Yodong, Y. (2022). The Effectiveness of Counselling Using Animated Video on the Behaviour Regarding Dental Caries among Elementary School Students. *Jurnal Kesehatan Gigi*, 9(1), 47–52. <https://doi.org/10.31983/jkg.v9i1.8271>