

## Effectiveness of an Animated Educational Video in Improving Dental Health Knowledge in Primary School Students

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### Abstract:

**Background:** Caries is an important health problem to overcome because it can interfere with quality of life. In primary school children, the impact of caries can cause a reduction in appetite, thereby disrupting the child's growth and development. In addition, caries causes children's concentration to be disturbed so that their learning achievement decreases. Based on WHO data, 60-90% of children experience dental caries. In Indonesia, the prevalence of caries is still high and serious treatment efforts are needed. The results of Basic Health Research (2018) from the Ministry of Health of the Republic of Indonesia stated that the prevalence of caries in children aged 3-4 years was 81.5.

**Materials and Methods:** This research is a cross sectional intervention study. In the present study a total of 66 students were considered those who completed pre and post intervention questionnaire. In order to assess baseline dental health knowledge, questionnaire was designed based on the contents of video and was pre-tested on students. Pre-intervention knowledge was assessed and then the 20 minutes video was shown. Following this, post-exposure knowledge was assessed using the same questionnaire. Change in the knowledge score amongst the subjects was assessed pre and post-intervention after showing the animated video. Data analysis using paired t-test.

**Results:** The research results indicate that the mean of dental health knowledge before being educated using animated video is 8.7 and after being educated using animated video is 11.2 ( $p < 0.005$ ).

**Conclusion:** Implementation of dental health education using animated video program is effective aid for teaching oral health instructions and preventing dental and oral diseases in children as the knowledge scores of children increased greatly when educating intervention was used.

**Keyword:** Dental health; Animated educational video; Knowledge

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Date of Submission: 12-06-2024

Date of Acceptance: 25-06-2024

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### I. Introduction

Overall body health, including dental and oral health is important for everyone. Dental and oral health can affect speaking function, swallowing and aesthetics as it includes the physical, psychological, social, and environmental domains that are essential for overall health and well-being<sup>1-3</sup>. Oral cavity and its surrounding<sup>4</sup> structures that are free from any disease indicates good oral health. It doesn't just make a person looks and feels good, this is also relevant in maintaining oral hygiene function.

Dental caries comprise one of the most prevalent infectious diseases in Indonesia<sup>5,6</sup>. Rising number of dental problems makes such innovative preventive strategy to commence which is the need of the hour<sup>7</sup>. Problems with dental and oral health can have a negative impact on daily life, including decreasing general health, reducing levels of self-confidence, and interfering with performance and attendance at school, work, or other activities<sup>4,7</sup>. In recent years, attention has been focused on assessing the effectiveness of oral health education programs. Health education as a tool for health promotion is part important to support success health program<sup>8-11</sup>. Health education using media education that involves the five senses will influence the success of increasing elementary school students' knowledge<sup>7,12</sup>. School age is influential in children's lives. It is a time when lifelong sustainable oral health related behaviors being instilled. During this stage, children are more receptive; in addition, earlier establishment of habits produces a longer lasting impact. Therefore, schools can be considered an ideal environment for educating and promoting dental and oral health<sup>13</sup>.

Efforts to increase dental health knowledge can be done by conducting counseling using media that can attract the attention of school-age children. Dental Health education is a significant aspect of dental and oral health promotion and is a crucial and basic part of oral health services<sup>14,15</sup>. The overall purpose is to principally

provide information to improve oral health knowledge for adoption of a healthier lifestyle, changed behaviors through educational means.

Early primary school students need to be educated to be able to maintain the health of their teeth<sup>16</sup>. Elementary school children are more susceptible to dental caries because they generally really like sweet foods, especially chocolate, candy and sweet cakes, apart from that, children's awareness of always maintaining oral hygiene is still lacking<sup>17,18</sup>. Based on the background, researchers are interested in finding out the effect of counseling using animated videos in Primary School Students.

## II. Material and Methods

### Study Design

The sample is 10-11 years old at 064023 Primary school, Medan Tuntungan. This type of research was a quasi-experimental design with pre-test and post-test design. The number of samples was 66 students. The collected data are analyzed using univariate analysis to determine the frequency distribution of knowledge frequency. To determine the effect of dental health education, the knowledge before and after the intervention using animated video was compared and analyzed using the paired t-test.

### Data collection

Data collection begin with distributing questionnaires to students to get initial data on knowledge about dental health (pre-test). Each student fills out a questionnaire in the form of a list of questions about healthy teeth and caries, foods that are healthy for teeth and not healthy for teeth, as well as the importance of brushing teeth and regular check-ups with the dentist. Futhermore dental health education is provided to all students using an animated video with a duration of 20 minutes. After completion of the intervention, the questionnaire was administered again (as a post-test).

### Data analysis

The collected data are analyzed using univariate analysis to determine the frequency distribution of knowledge frequency. To determine the effect of education using animate video on increasing knowledge about dental health in students, the knowledge before and after the intervention using animate video was compared and analyzed using the paired t-test.

## III. Result

Health education using animated videos provides positive changes for students' knowledge. Distribution of Knowledge Frequency of Students at elementary school, it shows that there was an increase in knowledge after the intervention using animated video.

**Table 1.** Frequency distribution of dental health knowledge before and after education using animated video

Knowledge	Before education		After education	
	n	%	n	%
Good	14	21.2	62	93.9
Moderate	30	45.5	4	6.1
Less	22	33.3	0	0
Total	66	100	66	100

**Table 3.** Different test of dental and oral health knowledge before and after education using animated video

Knowledge	Mean	Difference	P-value
Pre-test	8.7	2.5	0.001
Pos-test	11.2		

Table 3 shows that the results of the paired sample test analysis obtained a p-value of 0.001, meaning that education with animated video media is effective in increasing dental health knowledge.

## IV. Discussion

This study aims to determine the effectiveness of Dental Health Education Using Animated Videos in Primary School Students. The present study assessed the percentage changes in response to knowledge on oral health before and after intervention. After interventions were found effective in improving oral health knowledge. Base on research result, before dental health education using animated video there were 33.3 % who

had less knowledge and only 21.2 % good knowledge. After education, there was an increase in knowledge in the good category 93.9% and no one had the criteria less knowledge. Findings of the present study revealed that the pretest mean knowledge score was found to be 8.7 and post-test mean knowledge score was 11.2. After analyzing the data using the t- test, it is known that the value of  $p(0.001) < \alpha(0.05)$  so that education using animated video has an effect on increasing students' knowledge in dental health care.

Based on research results, data obtained showed that 33.3% of students' knowledge about dental health was poor and 45.5% had moderate knowledge. The problem that occurs before implementing educating before using animated video media is at least the socialization activity of disseminating knowledge information related to dental and oral health, which is one of the factors causing the low level of knowledge of students regarding dental and oral health. Based on the answers on the questionnaire sheet, it is known that the simple thing is that there are still many students who don't know the right time to brush their teeth, the duration or how to brush their teeth. Likewise, students don't know what foods are healthy for their teeth. After providing education using animated videos, students already know information about dental health.

It is very important for students to know that brushing their teeth is the recommended way to clean the surface of their teeth and gums. toothbrushing is a recommended way to clean various dirt that sticks to the surface of the teeth and gums. In essence, proper tooth brushing practice involve brushing teeth twice a day i.e. in the morning and at night, for at least two minutes each. For the duration of toothbrushing each time 2–3 minutes. The recommended method starts from posterior to anterior on the sides of the lower jaw and upper jaw, and ends on the posterior side of the other side. Epidemiological study of tooth brushing is essential to evaluate dental health. It should be emphasized that the purpose of brushing teeth for students is to clean teeth so that food remains are not left stuck on the surface of the teeth for too long, so that tooth decay can be avoided. Based on the research results, dental health education using animated video provides positive changes to students' knowledge.

Dental health education can bring about positive changes in the behavior of an individual<sup>19</sup>. Dental health education has been carried out considered an important and integral part of dentistry health services and have been delivered to individuals and groups especially elementary school students. Animations have been increasingly utilized in educational and training settings over recent years and an overall positive effect of animations, but has also shown a link between animations and specific types of knowledge acquisition<sup>[22],[23]</sup>.

Animated video approach implemented in the classroom have numerous benefits, it is a method of teaching students to adopt educational material. Education are presented with interesting images so that they have implications for understanding because hearing and vision tools are used simultaneously so that students concentrate more<sup>22</sup>. The importance of giving health education to children is that they are at an early point in their health career<sup>23</sup>. Early childhood is a very appropriate time to lay the foundations for developing children's abilities, because at this time children are very easy to imitate what they see, hear and will be attached to the child's memory. It is important to understand the benefits of early childhood education and support its implementation. Early childhood education enhances cognitive development. Children's cognitive abilities are creative and full of imagination makes children like to discover new things, so that information given to children in an interesting way will be stored for a long time. For the prevention of oral health problems, health education of school children has a vital role<sup>24,25</sup>. The emergence of dental and oral diseases in primary school student from an attitude of ignoring dental health care. Dental and oral health in children are factors that must be considered as early as possible, because tooth decay in childhood can affect the growth of permanent teeth. Schools can be considered an ideal environment for promoting oral health<sup>13,26,27</sup>.

## V. Conclusion

Implementation of dental health education using animated video is effective aid for teaching oral health instructions and preventing oral diseases in children as the knowledge scores of children increased greatly when educating intervention was used. Interesting intervention efforts using interactive media are needed to increase dental health knowledge in elementary school children.

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