



The Effect of Educational Games on Tooth Brushing Skills in Preschool Children

Meidina Utari Zulfan¹, Yonan Heriyanto², Nining Ningrum³, Hera Nurnaningsih⁴ 

^{1,2,3,4} Department of Dental Health, Polytechnic Health of Bandung, Indonesia

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ABSTRACT

Educational regarding proper tooth brushing procedures needs to be carried out since preschool, because this is a golden time to build a habit. However, the proportion of correct brushing behavior based on RISKESDAS 2019 is only 2.8%. To overcome this behavior, it is necessary to provide treatment that attracts children's attention, such as providing educational games. The educational game that designed by researchers is about Tooth brushing Simulation using the Doctor Toys Set Educational Game Tool and video for how to play. The purpose of this study was to determine the effect of educational games to improve toothbrushing skills in Atikan Kindergarten, Bandung City. This research method uses a pre-experimental one group pre-test – post-test design which was carried out in April 2022 with a total sampling of 20 children. Toothbrushing skills were observed 2 times, before treatment (pre-test) and after treatment with educational games (post-test). Data analysis used paired-T test. The average score of the correct brushing movement before and after doing the Educational Game on Simulation of Brushing Teeth was 6.65 and 11.85 and there was a significant difference based on the mean score ($p < 0.05$). The conclusion is that an Educational Game about Simulation of Brushing Teeth with Doctor Toys Set and a video of how to play the tool can be used to improve tooth brushing skills in pre-school children.

INTRODUCTION

Maintaining healthy teeth and mouth can start from brushing your teeth properly, so it is necessary to educate children on how to brush their teeth from preschool age, because this age is the golden age to be given treatment in the form of instilling habits (Purnama et al., 2020). However, the proportion of correct tooth brushing behavior in Indonesia is only 2.8% (Kemenkes RI, 2018). To overcome the low rate of tooth brushing behavior, it is necessary to provide treatment that attracts children's attention, such as providing educational games because through this method children can concentrate more on the teaching, it is easy for children to understand, makes it easy for children to remember, and does not make teaching rigid. because the teaching carried out is simulative and practical because it involves children being directly involved in the teaching process, it can also stimulate children's basic abilities which are related to children's ability to brush their teeth correctly (Erdiyani et al., 2023; Pasaribu, 2019).

The educational game designed by the researchers carried out a tooth brushing simulation which was facilitated using the Doctor Toys Set Educational Game Tool (APE) and there was development of the APE design in the form of a video on how to play. Educational games are games that contain educational elements (Purnama et al., 2019). Apart from that, this game also provides a positive response or stimulation to the player's senses. The senses in question are sight, hearing, sound, cognitive balance, thinking power, affection, and motor skills (skills) (Suhariati & Nofalia, 2022).

There are game tools specifically designed for educational purposes that support educational games. This educational game tool (APE) can be used in various ways so that children get many developmental benefits (Dewi, 2022).

The aim of the research is to determine the effect of educational games on correct tooth brushing skills in Atikan Kindergarten, Bandung City, because based on preliminary data obtained by researchers on February 4 2022 from 13 representatives of student parents, it can be concluded that many of the children have cavities or caries. and there have been no in-depth efforts or research on tooth brushing behavior,

*Corresponding author

E-mail addresses: meidinautr@poltekkesbandung.ac.id

based on educational games to provide effective teaching regarding good and correct tooth brushing procedures.

Based on the results of these data, it is urgent to provide interventions for effective tooth brushing behavior to minimize and prevent disease and tooth decay in children in the future. That's why researchers use the educational game method as an effective instructional method in implementing correct toothbrushing techniques in early childhood.

METHOD

This research method uses a pre-experimental one group pre-test - post-test design which was carried out in April 2022 at Atikan Kindergarten, Bandung City with a total sample of 20 children taken. Tooth brushing skills were observed twice, namely before treatment (pre-test) and after treatment with educational games (post-test). Data analysis used the paired T test.

RESULT

Table 1. Percentage Frequency Distribution based on Atikan Kindergarten Demographic Data

Class	Age	N	Percentage (%)
A	4 – 5	9	45
B	6 – 7	11	55
Total		20	100%
Gender		N	Percentage (%)
Man		12	60
Woman		8	40
Total		20	100%

Table 1 shows that the respondents used in this study were more in class B with an age range of 6-7, namely 11 people or 55% and more students were male.

The results of tooth brushing are entered in the observation table and then the respondents' tooth brushing scores are added up in the correct category. The following is a table of the results of the research that has been carried out.

Table 2. Frequency Distribution of Toothbrushing Skills before and after being given an Educational Game

Variable	N	Correct score of brushing teeth	Average correct score	Percentage (%)
Before (Pre-test)	20	133	6.65	41.5
After (Post-test)	20	234	11.85	74

Table 2. Shows that the average score for correct tooth brushing skills among respondents after being given the educational game was higher, namely 11. The results in the table show that there was a difference in tooth brushing skills of 104 points or a percentage of 32.5% between before and after being given the game. educative.

The difference in tooth brushing scores was proven through a paired t test after the data was tested for normality with the Kolmogorov-Smirnov test which showed the data was normally distributed. The following is the significance value (p-value) from the paired t test.

Table 3. Frequency Distribution of Paired T Tests Before and After Being Given an Educational Game

Variable	N	Average Difference	Percentage Difference (%)	P-Value
Before After	20	5.2	32.5	0.000

Table 3 shows that the T-test obtained a P-value of 0.000 where $\alpha < 0.05$, meaning that there was a significant difference in the respondents' toothbrushing skills between before and after being given the educational game.

DISCUSSION

Research related to the influence of educational games on toothbrushing skills in preschool children at Atikan Kindergarten, Bandung City, shows that there is an increase in toothbrushing skills by playing educational games in the form of score differences.

Table 2 shows that the score before being given educational games only had an average of 6.65 points because most children forgot several surfaces to clean when brushing their teeth. That surface areas are often overlooked due to a lack of toothbrushing education that actively involves preschool children, so that children are not used to brushing thoroughly and often forget some parts, especially the palatal and lingual parts (Purnama et al., 2022; Putri & Maimaznah, 2021).

Meanwhile, respondents' tooth brushing skills after being given educational games had a higher average score of 11.85 (74%) compared to before the intervention (41.5%). An increase of 5.2 points (32.5%) according to table 4.3 can be achieved because this toothbrushing simulation educational game has several advantages, namely actively involving the sample so that it provides a positive response to sensing, such as; vision, hearing, sound, cognitive balance, thinking power, affection, and motor skills or skills (Purnama et al., 2019:37). In addition, the sample learns to understand activities that are not carried out in real situations, thereby helping to develop abstract imagination and critical thinking (Pasaribu, 2019).

The increase in the score difference in table 2 is proven by the paired T test. However, before carrying out this test, the data was first tested for normality using Kolmogorov-Smirnov, the results of which showed $P\text{-Value} > 0.05$. Thus, the data obtained is normally distributed so that it can be continued with the paired T test. Table 4.3 proves that there was an increase in respondents' tooth brushing skills after playing educational games with a large increase (difference) in the average score of 5.2 and the result was $P\text{-value} = 0.000$ where $\alpha < 0.05$, meaning there was a significant difference in skills. brush the teeth on the sample so that the hypothesis H_0 is rejected and H_1 is accepted.

The educational game designed by researchers is carrying out a tooth brushing simulation using an educational game tool (APE) called the Doctor Toys set and there is a guide/how to play in the form of a video. This game is an example of a game that aims to enable preschool children to brush their teeth skillfully to all parts of their teeth in a fun way and get many developmental benefits. Meanwhile, planning for educational game tools (APE) is carried out by identifying the needs and characteristics of children at Atikan Kindergarten. Bandung

Therefore, researchers determined the Doctor Toys Set obtained through purchasing on e-commerce as an educational game tool (APE) that is suitable for toothbrushing education at Atikan Kindergarten. This was determined because it was in accordance with the theory in her book entitled "APE Basic Guidebook; Educational Game Tools" that there are several things that need to be considered so that you don't choose the wrong APE for preschool age children, including; APE must attract attention in terms of shape and color, be adapted to the child's age and abilities, be safe so that it does not harm the child (not sharp and not too heavy), can be used in various ways, and have various developmental purposes or be multi-purpose.

So that the game is easy for preschool children to understand, the researchers designed a way to play the Tooth Brushing Simulation educational game using video, because video (audio visual) can present teaching material by listening and demonstrating something directly and can be repeated. In accordance with the research results of (Prasko et al., 2016), the use of audio visuals is stated to be very interesting for students and audio-visual media presents learning materials using teaching media tools that can be heard, or demonstrating tools so that students can watch directly and observe carefully.

Apart from that, the video is easier to access because the researcher has uploaded it on YouTube with the title "Toothbrushing Simulation Educational Game". Through videos, respondents became more interested and enthusiastic because the learning involved was fun and easy for children to understand, this is proven by table 3 which shows the improvement after being given the game.

Furthermore, (Panjaitan, 2019) research on "The Effect of Dental and Oral Health Education with Teaching Aids and Animation Videos on the ability to brush teeth in preschool-aged children at the Sion Girls' Kindergarten in Medan", showed research results with $p\text{value} = 0.001$ ($p < 0.05$) which proves the influence of oral health education with teaching aids and animated videos on the ability to brush the teeth of preschool children. This proves that the combination of teaching aids and animated videos such as APE used in educational games used by researchers can improve tooth brushing ability.

Education from preschool children about health, especially in the aspect of dental and oral health, must be carried out to achieve optimal general health. Therefore, it is necessary to implement tooth brushing education, one of which is through educational games to continuously train children's skills so that they always maintain the cleanliness of children's teeth and mouths from preschool age.

CONCLUSION

Education from preschool children about health, especially in the aspect of dental and oral health, must be carried out in order to achieve optimal general health. Therefore, it is necessary to implement tooth brushing education, one of which is through educational games to continuously train children's skills so that they always maintain dental hygiene and ma. The conclusion is that the educational game about simulating tooth brushing with the APE Doctor Toys Set and the video on how to play it can be used to improve teeth brushing skills. in pre-school children.

After providing education about how to brush your teeth using educational games, it is hoped that the activities carried out by the researchers can be implemented by the school themselves and become a school program to improve their students' toothbrushing skills. Further research is expected to use other educational game tools (APE) to provide health education and look for other variables regarding the causes of preschool age children's inability to brush their teeth.

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