

Original Research

## Effect of Toothbrushing Simulation Method with Bass Technique on the Dental and Oral Hygiene



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Article Info	Abstract
Article history: Received: 08 April 2021 Accepted: 31 July 2021	<p><i>Introduction:</i> Toothbrushing practice is a common problem encountered in maintaining children's dental and oral hygiene. The Bass Technique introduces to improve the practice of toothbrushing and promotes dental/oral hygiene among school-aged students. This study aimed to know the effect of the toothbrushing simulation method with bass technique on the dental and oral hygiene practice in Pulo Lor III Elementary School.</p> <p><i>Methods:</i> This was a pre-experimental study with one group pretest-posttest design. The study population was 49 students aged between 7 to 10 years old in Pulo Lor III Elementary School. Thirty students selected for the study by the purposive sampling technique. The independent variable was the toothbrushing method with the bass technique, while the dependent variable was dental and oral hygiene. An observation sheet and OHI-S questionnaire were employed to collect the study data. The Wilcoxon signed-rank test used to analyze the study data collected.</p> <p><i>Results:</i> The result revealed after the implementation of the bass technique, the number of participants with poor practice of dental and oral hygiene was increasing by a total of 0 (0%), followed by good and moderate practice of oral hygiene with a percentage of 13 (43.3%) and 17 (56.7%), respectively (<math>p=0.000</math>). The dental and oral hygiene observed after and before the implementation of the bass technique was also significant, with the value of <math>p</math> of 0.000.</p> <p><i>Conclusion:</i> Toothbrushing with bass technique significantly affected the dental and oral hygiene among students aged between 7 to 10 years old in Pulo Lor III Elementary School, Jombang District.</p>
Keywords: Bass technique, practice, tooth brushing	

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## INTRODUCTION

Dental and oral hygiene are an essential part of general health. The high prevalence of dental and oral issues in Indonesia indicated efforts to manage and prevent dental and oral diseases required among all the population [1], [2].

Only a few of toothbrushing techniques are popular among the children population. Vertical and horizontal techniques are well known and commonly implemented to maintain their dental and oral hygiene. The Bass Technique introduced to improve the effectiveness of toothbrushing practice in maintaining dental and oral hygiene [3].

Children estimated as a dense population with a high number of tooth decay cases in Indonesia. A health survey conducted by Indonesian Health Ministry in 2018 showed that 25.9% of Indonesians had dental and oral hygiene issues. The total of dental and oral hygiene issues in East Java was still above the average was 28.6%. These cases happened due to the poor toothbrushing practice among children under the age of 10 years old in East Java. The toothbrushing practice in East Java was still lingering around the percentage of 93,5%, under the average of national tooth brushing practice (93.8%) [4]. A high number of tooth decay cases also occurred in Jombang Regency. There were 4.178 cases of tooth decay happened in this area. A significant increase in tooth decay cases also found in Pulo Lor District. The number of tooth decay cases in Pulo Lor at 2014, 2015, and 2016 were 2.1%, 2.7 %, and 3.1%, respectively [5].

Factors affecting tooth decay cases among the children population are the presence of *Streptococcus* and *Lactobacillus*

bacteria in the oral cavity, food particles (especially candy and chocolate products), the anatomical structure of the teeth, and high saliva production. Dental or oral hygiene, the frequency of eating, sex, and age were also affected tooth decay cases [6].

Gingivitis also frequently happened due to poor dental and oral hygiene. The presence of *Streptococcus* bacteria can cause inflammation in the gingiva mucosal tissues [6].

Proper toothbrushing practices require in maintaining good dental and oral hygiene [3]. The combination of toothbrushing practice with various techniques of brushing teeth able to significantly improve dental and oral hygiene. One technique applied is a bass technique [3]. Bass technique conducted by putting the toothbrush on the level of 45° on the radix of the teeth and using gentle pressures with a circular motion to clean the teeth [3]. Toothbrushing practice is a healthy habit that necessarily adapted and adopted in an early stage of life because plaque control is significant in maintaining dental and oral hygiene [7]. The aim of this research is to identify effect of toothbrushing simulation method with bass technique on the dental and oral hygiene.

## METHODS

The research design in this study is pre-experimental study with one group pretest-posttest design, The study population was 49 students with aged between 7 to 10 years old in Pulo Lor III Elementary School Jombang District, the sample was 30 students with Purposive sampling technique employed to select study participants with inclusion

criteria including school children aged 7-10 years old, who are willing to be respondents. And Children in school who have read and written. while the exclusion criteria respondents with gingivitis, respondents who experienced inflammation of the tongue, and respondents who received school permission at the time of data collection.

The research was conducted from February to May 2020. The ethical test was conducted at the STIKES Insan Cendekia Medika Jombang Ethics Test Commission NO. 004/KEPK/ICME/II/2020.

The study variable was the effect of the bass technique on dental dan oral hygiene practice in Pulo Lor III Elementary School, Jombang District. Data collected from the observation then processed through data editing, coding, scoring, and tabulating. Wilcoxon Test conducted to analyze the data. Based on statistical analysis using the Wilcoxon test with the help of SPSS 21 with a significance level of = 0.05, it was obtained p =

0.000 which means  $p < 0.05$ , namely H1 is accepted, which means that there is an effect of the simulation method of brushing teeth using the bass technique on dental and oral hygiene.

## RESULTS

According to Table 1 before the implementation of the toothbrushing method in Pulo Lor III Elementary School, there were 27 students (90%) with poor toothbrushing practice. The improvement of this toothbrushing practice found on 18 students (60%) after the implementation of the toothbrushing simulation method.

According to Table 2 the majority of the participants were experiencing improvement in their dental and oral hygiene. Twenty-three students (76.6%) had moderate dental and oral health. There were 17 students (56.7%) who had good dental and oral hygiene after the implementation of the toothbrushing simulation method with the bass technique

**Table 1**

The Practice of Toothbrushing Before and After the Implementation of Toothbrushing Method with Bass Technique

Toothbrushing Practice	Before the Implementation of Bass Technique		After the Implementation of Bass Technique	
	Σ	%	Σ	%
Poor	27	90	2	6.7
Moderate	3	10	10	33.3
Good	0	0	18	60
<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>

Wilcoxon Statistical Analysis Result,  $\rho = 0.000$

**Table 2**

Dental and Oral Hygiene Before and After the Implementation of the Toothbrushing Simulation Method with the Bass Technique

Dental and Oral Hygiene	Before the Implementation of Bass Technique		After the Implementation of Bass Technique	
	Σ	%	Σ	%
Poor	3	10	0	0
Moderate	23	76.7	13	43.3
Good	4	13.3	17	56.7
<b>Total</b>	<b>30</b>	<b>100</b>	<b>30</b>	<b>100</b>

Wilcoxon Statistical Analysis Result,  $\rho = 0.000$

## DISCUSSION

Results revealed that toothbrushing simulation with bass technique significantly affected the toothbrushing practice. Significant improvement in toothbrushing practice found in the majority of the participants after the implementation of this simulation. Ninety percent of the participants (27 students) toothbrushing practice classified in a poor level before the simulation. After the simulation, 18 participants (60%) were experiencing improvement in their toothbrushing practice. This result indicated that the toothbrushing simulation well accepted by the study participants. Their comprehensive understanding and feedbacks given during the simulation affected the toothbrushing practice among the students.

Two-way communication happened between the health educators and participants in the simulation method done in this study. This type of communication prevented distractions that made their focus better during the simulation. At the age of 7 to 10 years old, children tend to learn effectively through various stimulation on their senses (eyes, ears, nose, tongue, and skin). The

modification of their environment according to these senses during the study would help them process the information better. It also made them well-adapted due to real situations. The simulation method in this study encourages direct demonstration of the toothbrushing method. Also, the independent and leaded-learning system makes the learning process felt more valuable and memorable for them. Children aged between 7 to 10 years old have concrete cognitive development. It showed that they tended to learn better from physical or true objects [8].

The toothbrushing simulation with the bass technique also showed a significant effect on dental and oral hygiene. The majority of the participants were experiencing improvement in their dental and oral hygiene. Seventeen students (56.7%) from 23 students (76.6%) with a moderate level of dental and oral hygiene in the initial measurement finally had good dental and oral hygiene at the end of the study.

Before the simulation, 23 students (76.6%) had moderate level of dental and oral hygiene. After the simulation, there were seventeen students (56.7%) with good dental and oral hygiene. Although almost half of the

participants had moderate level of dental and oral hygiene at the end of the study, the number of participants with poor dental and oral hygiene was decreased (10 students; 33.3%). Toothbrushing practice is significant in reducing food particles or plaques left on teeth after eating. It also effective in preventing tooth decay or cavities, maintain dental hygiene and reduce discomforts. Hence, the simulation method could affect dental and oral hygiene. Toothbrushing practice is a method to clean the teeth from plaques accumulated on the oral cavity [9], [10]. Dental and oral hygiene significantly affected the prevention of tooth decay, gingivitis, and bad breath.

Maintaining dental and oral health also reduced the discomfort in eliminating plaques between teeth [10], [11]. Besides direct teaching, the simulation also helped them to learn and memorize the steps immediately. This method also prevented misunderstanding the toothbrushing steps. The simulation method done provided a clear description, direct observation, and practices. Questions and feedbacks allowed during the simulation to make a clear and complete understanding of the toothbrushing practice.

Health education is a form of effort done by individuals or groups to elevate the skill, knowledge, attitude, and practice [12]. The attitude toward a health behavior is not the only factor that affected the formation of proper health practice [13]. Perception, leading factors, mechanism, and adoption also affected the formation of health practices. The simulation method helped the children in perceiving and assessing the proper toothbrushing practice to maintain dental and

oral hygiene. The limitation of the research is the lack of time management after counseling so that the lag time before and after the simulation is less than optimal.

## **CONCLUSION**

The majority of participants had poor level of toothbrushing practice before the implementation of the toothbrushing simulation method with the bass technique. The majority of participants had good level of toothbrushing practice after the implementation of the toothbrushing simulation method with the bass technique. The majority of participants had moderate level of dental and oral hygiene before the implementation of the toothbrushing simulation method with the bass technique. The majority of participants had good level of dental and oral hygiene after the implementation of the toothbrushing simulation method with the bass technique. Toothbrushing simulation method with the bass technique significantly affected the toothbrushing practice among the students aged 7 to 10 years old in Pulo Lor III Elementary School, Jombang District. Toothbrushing simulation method with the bass technique significantly affected the dental and oral hygiene among the students aged 7 to 10 years old in Pulo Lor III Elementary School, Jombang District.

Recommendation for the parents in teaching the correct method of toothbrushing to their children. This method expects good and routine practice of toothbrushing among children population with or without parental guidance. And for the next recommendation is to future studies, the duration before and after

the implementation of the toothbrushing method with the bass technique is required to be included in the analysis to provide comprehensive explanations of the effect of the bass technique. The frequency of the toothbrushing method implementation also needs to be analyzed in future studies.

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