

Available online on 15.03.2022 at <http://jddtonline.info>

# Journal of Drug Delivery and Therapeutics

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Research Paper

## The effectiveness of the application of the mentoring module on brushing teeth by parents on the behavior of brushing teeth in early childhood

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### Article Info:



#### Article History:

Received 29 January 2022  
 Reviewed 04 March 2022  
 Accepted 10 March 2022  
 Published 15 March 2022

#### Cite this article as:

Widiyastuti R, Purnama T, Laut MD, The effectiveness of application of the mentoring module on brushing teeth by parents on the behavior of brushing teeth in early childhood; Journal of Drug Delivery and Therapeutics. 2022; 12(2):83-86

DOI: <http://dx.doi.org/10.22270/jddt.v12i2.5397>

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### Abstract

**Background:** Ability and good habits in maintaining dental health must be trained from an early age. In early childhood, there are deciduous teeth that must be maintained and maintained in order to stay healthy and support children to grow and develop optimally. At the age of 6 years will begin to grow permanent teeth that will be used for life. Therefore, children need to be equipped with knowledge and skills in maintaining oral health independently. Parents, especially mothers, are the closest people to children who will provide assistance and guidance to early childhood children in carrying out dental health maintenance, in connection with children who are not yet able to do it themselves. **Objective:** This study aims to analyze the effectiveness of the application of the brushing mentoring module on improving tooth brushing behavior in early childhood. **Methods:** this study used a quasi-experimental with a pretest and posttest with one group design. This research was conducted at Pertiwi VI Kindergarten Pondok Labu. The independent variable: the application of the brushing mentoring module and the dependent variable: knowledge, early childhood tooth brushing skills, knowledge and attitudes of parents. Data were tested using Wilcoxon. **Result:** the application of the mentoring module on brushing teeth was proven to be significantly ( $p < 0.001$ ) effective in increasing the knowledge and skills of brushing teeth for early childhood as well as increasing the knowledge and attitudes of parents. **Conclusion:** the brushing teeth mentoring module is effective in increasing tooth brushing behavior in early childhood.

**Keywords:** Brushing mentoring module, behavior, early childhood.

## INTRODUCTION

Health development is directed at increasing community access and quality to quality health services in a comprehensive, integrated and sustainable manner. Dental and oral health services are an inseparable part of the overall health service effort.<sup>1,2</sup>

The data shows that the number of dental and oral diseases is still high in the community, on the other hand there are health status gaps between socio-economic, inter-regional and inter-regional in Indonesia. Based on the results of the 2018 Basic Health Research, the average dental caries experience index or def-t for children aged 5 years reached 8.1. The average def-t index for boys is 8.2, while for girls is 8.0. The def-t index in urban areas is higher than in rural areas.<sup>3</sup>

Poor oral conditions, for example the number of missing teeth as a result of damaged teeth or untreated trauma, will interfere with the function and activity of the oral cavity, so that it will affect nutritional status and will have an impact on quality of life. In childhood, these conditions will have an impact on the growth and development and welfare of children and will significantly impact their lives in the future.<sup>4,5</sup>

High caries can reduce a child's quality of life; they experience pain, discomfort, disorganized facial profile, acute and chronic infections, eating and sleeping disorders;

even severe caries can also increase the risk of being hospitalized so that the child does not attend school and can affect the child's learning process. Children who have poor oral health are 12 times more likely to suffer from activity disorders including not attending school than those who have good oral health. In addition, if the child suffers from tooth decay, the child will feel sick so that the child is lazy to eat and do activities. As a result, the need for food for the growth and development of children is not met. Deciduous teeth are susceptible to caries because their tooth structure is thinner and smaller than permanent teeth. If the deciduous molars fall out prematurely due to caries, the possibility of permanent tooth growth will be crowded because the molars function to hold space for the permanent teeth that grow. If the condition of permanent teeth is crowded, it is difficult to clean food debris so that the risk of dental caries will continue on the permanent teeth.<sup>6-8</sup>

Deciduous teeth are important teeth because they have the function of mastication, phonation, aesthetics and supporting periodontal tissues in children. Parents often pay less attention to the health of their child's deciduous teeth because they think that these deciduous teeth are only temporary and will be replaced by permanent teeth, even though the growth and good care of primary teeth will affect the growth of permanent teeth later.<sup>9,10</sup>

Based on the Dental and Oral Health Action Plan which has targeted that Indonesia is caries-free by 2030. With the current condition where the prevalence of cavities in early childhood is

still very high, it is necessary to take steps to improve the knowledge and skills of parents who will provide assistance and guidance to early childhood in maintaining dental health and mouth.

Good skills and habits in maintaining dental health must be trained from an early age.<sup>11</sup> In early childhood, there are deciduous teeth that must be maintained and maintained in order to stay healthy and support children to grow and develop optimally. At the age of 6 years, permanent teeth will begin to grow which will be used for life.<sup>12,13</sup> Therefore, children need to be equipped with knowledge and skills in maintaining their oral and dental health independently.<sup>14,15</sup>

Parents especially mothers, are the closest people to children who will provide assistance and guidance to early childhood children in carrying out dental health maintenance, in connection with children who are not yet able to do it themselves. Based on the results of research conducted by Kasihani et al. in Gandul sub-district, Cinere sub-district, Depok City, most parents (52.2%) have less supportive behavior towards efforts to maintain early childhood teeth. This could be due to the fact that most parents (68.7%) had a low level of knowledge about the maintenance of dental health for early childhood.<sup>4</sup>

One of the steps that can be taken is to increase knowledge, develop positive attitudes and skills of parents to support efforts to maintain milk teeth in early childhood and be willing and able to train children to practice good habits in maintaining dental health. One way that can be done is to train parents to improve their knowledge and skills in assisting early childhood to brush their teeth. The media that will be used is a module containing information about the importance of maintaining dental health in early childhood and steps to assist parents in getting used to maintaining dental and oral health.

**MATERIALS AND METHODS**

The research design used a quasi-experimental design with a one-group pretest and posttest design. This research was conducted at Pertiwi VI Kindergarten Pondok Labu, Cilandak District, South Jakarta from September to October 2021. The sampling technique used a purposive sampling technique as many as 70 respondents, consisting of 35 parents and 35 children.

The independent variable the application of the brushing mentoring module and the dependent variable knowledge, early childhood tooth brushing skills, knowledge and attitudes of parents. The data collection instrument in this study used observation and questionnaires. Data collection begins with conducting a pretest on all groups of respondents, then intervention is carried out in the form of providing dental health education using the parental brushing assistance module. After 10 days, a posttest was conducted with a questionnaire and observation of the same skills on all respondents. Analysis of research data used is the Wilcoxon test.

**RESULT**

Table 1 shows that the age of children has the same proportion, most of them are 6 years old. Gender is mostly female. The age of the parents is mostly with the proportion of age > 30 years with a job as a housewife and the last education is senior high school.

**Table 1: Frequency distribution of respondent characteristics**

Variable	n	%	
Gender	Male	16	45.7
	Female	19	54.3
Age	5 years	13	37.1
	6 years	22	62.9
Parents age	≤ 30 years	13	37.1
	> 30 years	22	62.9
Gender of parents	Male	1	2.9
	Female	34	97.1
Parents job	Private	3	8.6
	Self Employed	6	17.1
	Moderate	26	74.3
Parents education	Junior high school	15	42.9
	Senior high school	18	51.4
	Higher education	2	5.7

**Table 2: Data normality test**

No.	Variable	p-value
1	<b>Early childhood</b>	
	Knowledge pretest	0.000
	Knowledge posttest	0.000
	Skill of brushing teeth pretest	0.039
2	<b>Parents</b>	
	Knowledge pretest	0.000
	Knowledge posttest	0.000
	attitude pretest	0.009
	attitude posttest	0.000

Table 2 shows that the results of the normality test for all variables are not normally distributed, because the p-value < 0.05, then the non-parametric test is continued

**Table 3: Test the effectiveness of knowledge and skills of brushing teeth before and after intervention**

Variable	Mean±SD	p-value
Knowledge	Pre-test	51.14±6.311
	Post-test	93.71±8.075
Skill of brushing teeth	Pre-test	45.14±12.68
	Post-test	91.71±10.14

Table 3 shows that the results of the effectiveness test of the data before and after being given the brushing mentoring module showed that the knowledge of brushing teeth showed a p-value of 0.001 (p <0.05) and the p-value of brushing teeth skills was 0.001, meaning that the application of the parenting brushing mentoring module effectively increased knowledge and tooth brushing skills in early childhood.

**Table 4: Test the effectiveness of parents' knowledge and attitudes before and after the intervention**

Variable	Mean±SD	p-value
Knowledge	Pre-test	62.00±7.593
	Post-test	97.57±10.10
Attitude	Pre-test	41.66±2.960
	Post-test	48.34±2.155

Table 4 shows that the results of the effectiveness test of the data before and after being given the tooth brushing mentoring module showed that the knowledge of the parents had a p-value of 0.001 ( $p < 0.05$ ) and the p-value of parents' attitudes was 0.001, meaning that the application of the parental brushing mentoring module effectively increased knowledge and parental attitude.

## DISCUSSION

### a. Parents

The role of parents is very necessary in guiding, providing understanding, reminding, and providing facilities to children so that children can maintain oral hygiene. In addition, parents also have a significant role in preventing plaque accumulation and caries in children.<sup>16</sup>

Parental knowledge is very important in underpinning the formation of behaviors that support or do not support children's dental and oral hygiene. This knowledge can be obtained naturally or in a planned manner, namely through the educational process. Parents with low knowledge about dental and oral health are predisposing factors for behavior that does not support children's dental and oral health. Some things that need to be considered in applying dental and oral health maintenance techniques at this age are teaching how to brush your teeth properly, giving toothpaste, giving topical fluoride, and giving mouthwash.<sup>17</sup>

At an early age, many activities will have a major impact on the child's daily schedule, routine personal hygiene should be scheduled. The ideal development of a regular self-cleaning schedule can be rehearsed with a routine or regular schedule over a period of time. Parents must continue to play an active role in nurturing, educating, motivating, and supervising dental and oral health care. Parental help is needed to help brush teeth, reduce or remove plaque on the teeth, selection of the size and fineness of toothbrush bristles also plays an important role in maintaining children's oral and dental health.<sup>18-20</sup>

The role of parents as caregivers is carried out by paying attention to children in maintaining oral and dental hygiene. Parents act as caregivers to observe children's behavior in maintaining dental health.<sup>21,22</sup> The monitoring activity of brushing teeth received a positive response from all parents. Starting with parental training on dental health maintenance. The meeting was attended by 35 parents of Pertiwi IV Pondok Labu Kindergarten students. The purpose of this activity is to increase the knowledge, attitudes, and actions of parents in maintaining oral and dental hygiene, finally it is hoped that through the figure of a person can be a role model for their children. Furthermore, parents are given a module for brushing their teeth for 10 days. The module also contains dental health materials including; function of teeth, growth of teeth, dental health problems in early childhood and maintenance of dental health in early childhood including how to brush teeth properly.

The results of the effectiveness test of the data before and after being given the tooth brushing mentoring module showed the parents' knowledge and attitudes, the p-value was 0.001 ( $p < 0.05$ ), meaning that the application of the parenting brushing mentoring module was effective in increasing parents' knowledge and attitudes. The increase in knowledge and attitudes is due to the training accompanied by a brushing mentoring module that provides an understanding of the material for maintaining oral and dental hygiene. Health education is essentially an activity or effort to convey health messages to the community, group or individual. By being given training, respondents get learning

that results in a change from what was previously unknown to known, previously not understood to be understood. This is in accordance with the research of Subekti et al. parental assistance in brushing teeth greatly influences changes in tooth brushing behavior and the level of children's dental hygiene.<sup>5,23</sup>

### b. Early childhood

The results of the effectiveness test of the data before and after being given the tooth brushing mentoring module showed that the knowledge and skills of brushing teeth in early childhood, the p-value was 0.001 ( $p < 0.05$ ), meaning that the application of the parental brushing mentoring module was effective in increasing the knowledge and skills of brushing teeth in children. early age. Knowledge and skills of brushing teeth in early childhood have increased because for 10 days respondents were given an intervention in the form of a mentoring module for brushing teeth by parents, where every day parent's guide and monitor brushing their teeth after breakfast and at night before going to bed.

The role of parents as a motivator is to motivate children in maintaining oral and dental hygiene. Parents will motivate children to maintain and care for dental health. Parental motivation is very important for children in maintaining oral and dental health. The role of parents as educators is to provide learning about the maintenance of dental and oral hygiene in children. Parents will provide simple knowledge about the maintenance of dental and oral hygiene. Children who have knowledge in efforts to maintain dental and oral health, children will be able to carry out dental and oral health maintenance independently.<sup>24</sup> Research Purnama et al. proves the 10-day parental monitoring model is effective in improving children's tooth brushing behaviour.<sup>25</sup>

## CONCLUSION

Based on the results of the study, it can be concluded that there is the brushing teeth mentoring module is effective in increasing brushing teeth behavior in early childhood.

## ACKNOWLEDGEMENTS

The authors thank to Poltekkes Kemenkes Jakarta I for funding this research, all participants and research assistants.

## CONFLICT OF INTEREST

The authors declare that they have no conflict interests.

## ETHICAL CLEARANCE

The study was conducted after obtaining approval from Ethical Exemption Poltekkes Kemenkes Jakarta I No.176/KEPK/VIII/2021.

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