



Tooth Brushing Skills and Personal Hygiene Performance Modified (PHP-M) Index in preschool children

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Abstract

Background: The prevalence of caries in children aged 5-6 years is 92.6% with a def-t index of 8.43, meaning that young children in Indonesia have experienced 8-9 cavities per child. The high number of dental and oral diseases currently is greatly influenced by several factors, one of which is the behavior of people who do not realize the importance of maintaining dental and oral health. Brushing teeth is a simple act of removing plaque and food residue with a brush and toothpaste, because plaque and food residue are the main causes of dental caries. The Personal Hygiene Performance Modified (PHP-M) Index is an indicator for measuring dental hygiene status in mixed dentition. **Objective:** The aim of this research is to analyze the relationship between tooth brushing skills and the Personal Hygiene Performance Modified Index in preschool children in Pondok Labu Village, Cilandak District, South Jakarta in 2023. **Method:** This research uses observational analytical methods with a cross-sectional design. The sampling technique for this research used a purposive sampling technique of 66 respondents. The data collection instrument uses a tooth brushing observation sheet to measure teeth brushing skills and the Personal Hygiene Performance Modified Index. Data analysis used the chi-square test with the SPSS application. **Results:** Chi-square test results show that tooth brushing skills influence the Personal Hygiene Performance Modified Index in Preschool children ($p=0.022$). **Conclusion:** there is a relationship between tooth brushing skills and the Personal Hygiene Performance Modified Index in preschool children

Keywords: Tooth brushing skills, PHP-M Index, Preschool Children

INTRODUCTION

Dental and oral health is part of a person's overall body health. The dental and oral health of the Indonesian people is still something that needs serious attention from health workers, both dentists and dental therapists. It can be seen that dental and oral diseases are still suffered by 90% of the Indonesian population. According to WHO (World Health Organization) in 2013, throughout the world 60-90% of school children and almost 100% of adults experience dental caries, which often causes pain and discomfort. Dental and oral health problems for children in Indonesia are still very low, as evidenced by the Results of basic health research in 2018, reporting that 92.6% of young children aged 5-6 years experienced dental health problems; with a national def-t figure of 8.43, this means that the average number of tooth decay is 8 to 9 teeth per child.¹⁻³

Dental disease can affect the body's health, if left untreated it will have an impact on more dangerous diseases, such as: heart attack, stroke, diabetes, respiratory and gastrointestinal infections, etc. Tooth decay at an early age can affect tooth growth. The function of teeth is very necessary in childhood, namely as a chewing tool, helping in speaking, facial balance, supporting the aesthetics of the child's face. If a child cannot chew well then malnutrition will occur, and the learning process will be disrupted.⁴⁻⁶

The high number of dental and oral diseases currently is greatly influenced by several factors, one of which is the behavior of people who do not yet realize the importance of maintaining dental and oral health. It can be seen that the

tooth brushing behavior of the population aged ≥ 3 years is 2.8% who brush their teeth correctly.³

One way that children's independence can be seen is through daily activities, namely instilling independence in young children through cleanliness. Early childhood independence can be done such as brushing one's own teeth. Brushing teeth is a simple act of removing plaque and food residue with a brush and toothpaste, because plaque and food residue are the main causes of dental caries. According to Arianto et al stated that children's tooth brushing behavior must be carried out in everyday life without feeling forced. The ability to brush your teeth properly and correctly is an important factor for oral health care.⁷⁻⁹

The benefits of brushing your teeth are to clean your teeth from dirt, especially plaque from food remains, prevent cavities and avoid toothache, as well as eliminate bad breath and keep your teeth healthy. Pain in the child's teeth and mouth which will reduce the child's appetite, another impact is that the child's learning ability is reduced so that it affects the child's learning achievement. Early childhood (3-6 years) still do not understand and understand how to care for their teeth properly. Tooth decay can be prevented by brushing your teeth before sleeping and after eating. According to Purnama et al, preschool children are not yet skilled at brushing their teeth.¹⁰⁻¹²

Several studies prove that the relevant research results of Razi et al show that the mean value of independence in brushing teeth before intervention was given was 4.34, meaning that young children do not yet have the independence to brush

their teeth. Another study Zulfikri and Huda, showed that dental and oral hygiene status with moderate criteria was 31 people (51.7%), with poor criteria was 29 people (48.3%), and very good criteria was (0%) and good criteria (0%) because there are no students who have very good criteria and good criteria. Purnama's research on tooth brushing skills on dental hygiene status $p=0.001$ ($p<0.05$), meaning that there is a significant relationship between tooth brushing skills and the dental hygiene status of preschool aged children.¹³⁻¹⁵

METHOD AND MATERIAL

This research is an analytical observational study with a cross-sectional approach. The study was conducted in June-July 2023. The research was conducted on children aged 5-6 years at Pertiwi VI Kindergarten and Bina Harapan Kindergarten, Pondok Labu Village, South Jakarta City. The research sample was taken using a total purposive sampling technique of 66 respondents. The dependent variable in this research is tooth

brushing skills and the independent variable is the Personal Hygiene Performance Modified Index. Data collection on toothbrushing skills was measured using a toothbrushing observation checklist, validity and reliability tests were carried out by the same previous researchers who examined toothbrushing skills and the Personal Hygiene Performance Modified Index was a standardized plaque index measuring tool. The stages of the activity include: first, the companion/parent fills out the informed consent form first as an agreement to be willing to become a research respondent. Then check the child's Personal Hygiene Performance Modified Index in turn and continue making observations about brushing their teeth.

Data analysis was carried out using the SPSS statistical program for univariate analysis and presented in the form of a frequency distribution and bivariate analysis with chi-square to measure the relationship between tooth brushing skills and the Personal Hygiene Performance Modified Index.

RESULT

Table 1: Frequency Distribution based on respondent characteristics, tooth brushing skills and the Personal Hygiene Performance Modified Index

Variable		n	%
Age	5 years	25	37.9
	6 years	41	62.1
Gender	Man	33	50.0
	Women	33	50.0
Tooth brushing skills	Good	7	10.6
	Less	59	89.4
Personal Hygiene Performance Modified Index	Very good	2	3.0
	Good	15	22.7
	Moderate	47	71.2
	Bad	2	3.0

Table 1 shows that the characteristics of respondents based on age are mostly 6 years old and with the same proportion of men and women. Teeth brushing skills are mostly poor and have a Personal Hygiene Performance Modified Index in the moderate category.

Table 2: Results of Analysis of tooth brushing skills and the Personal Hygiene Performance Modified Index

Variabel	Criteria	Brushing skills				Total		p-value
		Good		Less				
		n	%	n	%	n	%	
Personal Hygiene Performance Modified Index	Very good	1	1.5	1	1.5	2	3.0	0.022
	Good	4	6.1	11	16.7	15	22.7	
	Moderate	2	3.2	45	68.2	47	71.2	
	Bad	0	0	2	3.0	2	3.0	

Table 2 Results of chi-square analysis of toothbrushing skills on the Personal Hygiene Performance Modified Index $p=0.022$ ($p<0.05$), meaning that there is a significant relationship between toothbrushing skills and the Personal Hygiene Performance Modified Index of preschool children.

DISCUSSION

Dental and oral hygiene is a condition where the teeth in the oral cavity are clean, free from plaque and other dirt on the surface of the teeth such as debris and tartar. Oral hygiene has a big influence on preventing cavities or caries, gingivitis, periodontitis, and also preventing bad breath. Maximum dental and oral hygiene can be achieved by cleaning the teeth and mouth from food residue left between the teeth or fissures. Good oral hygiene has an impact on dental and oral health, conversely, poor oral hygiene can cause various diseases in the oral cavity as a result of the emergence of debris and tartar or calculus. The skill of brushing your teeth properly and correctly is an important factor for oral health care.^{16,17}

Based on the results of the research conducted, it was found that the proportion of respondents who had poor teeth brushing skills and a moderate Personal Hygiene Performance Modified Index was 68.2%, while the proportion of respondents who had good teeth brushing skills and a good Personal Hygiene Performance Modified Index was 6.1%. Based on the statistical test chi-square analysis of toothbrushing skills on the Personal Hygiene Performance Modified Index $p=0.022$ ($p<0.05$), meaning that there is a significant relationship between toothbrushing skills and the Personal Hygiene Performance Modified Index of preschool children.

This research is in line with Kasihani et al research which shows that there was a significant relationship ($p < 0.001$) between the independence of brushing teeth and the free plaque score. Apart from that, this is also in line with research conducted by Purnama et al which states that there is a significant relationship between tooth brushing skills and dental hygiene status with $p=0.001$.^{7,15}

Brushing teeth is cleaning teeth from food debris, bacteria and plaque. Cleaning teeth must pay attention to implementing the right time for cleaning teeth, using the right tools to clean teeth and the right way to clean teeth, so that the habit of brushing teeth is a human behavior in cleaning teeth from food debris which is carried out continuously. The habit of caring for your teeth by brushing your teeth at least twice a day at the right time in the morning after breakfast and in the evening before bed as well as the behavior of eating sticky and sweet foods can influence the occurrence of dental caries.^{18,19}

Efforts to maintain dental and oral health should be carried out from an early age. Preschool age is an ideal time to train a child's motor skills, including brushing their teeth. The ability to brush your teeth properly and correctly is an important factor for maintaining your teeth and mouth. Tooth brushing skills must be taught and applied to children of all ages, especially school age children because that age easily accepts and instills basic values. Preschool children need learning to improve their teeth brushing skills.^{20,21}

According to the Ministry of Health it is necessary to implement self-care practices in schools by brushing your teeth every day at school. Apart from that, it is also possible because there is no toothbrushing equipment (toothbrush, toothpaste and mouthwash cup) stored at school. Brush, toothpaste and mouthwash cup as well as a personal storage place can make it easier for children to take and store their toothbrush without the help of other people. Facility support is one of the successes of dental health programs in schools.^{22,23}

CONCLUSION

Based on the results of the study, it can be concluded that there is a relationship between tooth brushing skills and the

Personal Hygiene Performance Modified Index in preschool children.

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CONFLICT OF INTEREST

The authors declare that they have no conflict interests.

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