

Determinants of Tooth Brushing Behavior in Sixth Grade Elementary School Students in Lebak Bulus Sub-District, South Jakarta

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Abstract— Background: Dental health is an integral part of overall health. One of the main factors influencing the oral and dental health of people in developing countries is the behavioral factor of maintaining dental hygiene, namely brushing behavior. This study aims to determine the behavior of tooth brushing and the factors associated with tooth brushing behavior in sixth grade elementary school students in Lebak Bulus Sub-District, South Jakarta. The research design used was cross sectional with a total sample of 190 students. Data were collected by interview using a questionnaire. The results showed as many as 82.6% of sixth grade students had improper brushing behavior. Statistical test results found that there was a significant relationship between knowledge about the time and frequency of toothbrushing with the behavior of students' brushing (p value = 0.046). It is recommended that the Ministry of Health of the Republic of Indonesia make policies aimed at developing dental health programs in school dental health services supported by the full collaboration of the roles of parents, teachers and the school community, especially in the cognitive domain, attitudes and behaviors of students paying attention to their dental health.

Keywords— Determinant, tooth brushing behavior, sixth graders.

I. INTRODUCTION

Health development aims to increase awareness, willingness and ability to live healthy for everyone in order to realize the highest degree of public health, as an investment for the development of human resources that are socially and economically productive. The goal of the 2015 Healthy Indonesia development is to increase awareness, willingness and ability to live a healthy life for everyone so as to realize an optimal degree of public health through the creation of the people, nation and state of Indonesia which is characterized by its inhabitants living in the environment and with healthy living behaviors. The expected healthy behavior of Indonesian people in 2015 is proactive behavior to maintain and improve health, prevent the risk of disease and protect themselves from disease threats. [1]

Dental health is an integral part of overall health. Dental health is also one component of overall health and cannot be ignored because oral and dental health also influence the child's perfect growth and development aimed at creating healthy, intelligent and productive human beings and have a high fighting spirit. [2] Neglected dental and oral health can cause various kinds of diseases in the mouth, which can attack all age groups that are progressive and accumulative. [3] The 2007 Balitbangkes National Health Survey reported that 75% of Indonesia's population had a history of dental caries, with an average number of tooth decay of 5 teeth each, including 4 teeth that had been removed or could no longer be maintained. [4] The latest data released by the Oral Health Media Center in April 2012 shows that 60-90% of school-age children and almost all adults around the world have dental problems. [5]

Health problems of a person or community including dental disease are determined by two main factors, namely behavioral and non-behavioral factors. According to Bahar (2000), one of the main factors affecting dental and oral health

of the population in developing countries is a behavioral factor, whereas according to Petersen (2005) behavior that can affect dental health one of them is the behavior of maintaining dental hygiene by brushing teeth using toothpaste that contain fluorine. [6]

Clean teeth with how brushing your teeth is one of the most effective and easy way to prevent dental disease. Brushing your teeth should be done twice a day ie in the morning after eating and at night before going to bed, this is because at that time the mouth is not active or there is no natural cleaning. Remnants of food that are not cleaned will experience decay, the process of which is assisted by bacteria in the mouth to produce acids that will cause damage to the teeth. [7] Everyone needs to maintain oral health by way of correct brushing to prevent dental disease. The results of the Workshop Agreement on "Effective Use of Fluoride in Asia " in Phang-Nga, Thailand in 2011, recommended the correct habit of brushing teeth with a frequency of at least twice a day ie after breakfast and before going to bed and using a technique that allows toothpaste to spread evenly distributed throughout the teeth. [3]

Data from the 2013 National Riskesdas survey shows the habit of brushing teeth that is almost evenly distributed across all age groups. The correct habit in brushing Indonesian people's teeth is only 2,3 %, while in DKI Jakarta it is only 3.5%. In the 12 year age group only 1.8% had the habit of brushing their teeth properly. [10] According to WHO (1997), the 12-year age group is an important age, because at that age children will leave primary school and in many countries this age group is easily accessible through the school system.

Habit or human behavior is influenced by three main factors, namely the predisposing factors (predisposing factors), enabling factors (enabling factors) and factor amplifier (reinforcing factors). Predisposing factors merupakan factors that predispose behavior in a person or

society that is knowledge, attitudes, traditions, belief systems, values related to health in the community as well as socio-demographic (age, gender, education level, occupation, etc). Enabling factors merupakan factors that support occurrence of behaviors that facilities, equipment. While the reinforcing factor is the reinforcing factor for the behavior, namely the attitudes and behavior of the reference group including health workers, teachers and parents. [11]

Tauchid et al (2010) research on the relationship between tooth brushing behavior and dental caries status in sixth grade elementary school students in the Lebak Bulus district, South Jakarta, found that 72.3% of students had damaged or caries in their permanent teeth, where the average number Broken teeth are two teeth. The results also obtain data that amounted to 76,6 % students have incorrect behavior in brushing his teeth. The purpose of the study was to determine the behavior of toothbrushing and the factors associated with toothbrushing behavior in sixth grade elementary school students.

II. RESEARCH METHODOLOGY

This research is an analytical survey research with cross-sectional design which is intended to see the relationship between free variables (gender, knowledge, availability of toothbrushes, information exposure, parent support, teacher support and support of health workers) and var iabel bound (tooth brushing behavior). In this study, researchers wanted to find out the determinants / factors associated with tooth brushing behavior in sixth grade elementary school students in the Lebak Bulus sub-district of South Jakarta.

The population in this study were all sixth grade elementary school students in the area of Lebak Bulus Sub-District, South Jakarta. The research sample is a portion of the population of elementary school students in the en am class in the area of Lebak Bulus, South Jakarta. To qualify for the minimum number of samples needed in this study was determined based on the formula of the sample size of the two-proportion different hypothesis test Based on the above calculation, the minimum number of samples needed was 190 students. The instrument used in this study was a questionnaire. The data collected is primary data for both the independent and dependent variables. Data collection was collected through interviews using questionnaire sheets. Data analysis was carried out in stages, namely univariate analysis, bivariate analysis with Chi square test.

III. RESEARCH RESULT

TABLE 1. Relationship of Knowledge with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Knowledge Well	33	19.2	139	80.8	172	100	1,237 (1,151-1,331)	0.046
Not good	0	0.0	18	100	18	100		
total	33	17.4	157	82.6	190	100		

The analyst is the relationship between knowledge and behavior of brushing teeth that there were 33 (19.2%) of respondents with good knowledge to have the correct

toothbrushing behavior, whereas among respondents with no knowledge of either no 0 (0.0%). The statistical test results obtained p value = 0.046, it can be concluded that there are differences in the proportion of teeth brushing behavior between respondents who have good knowledge and respondents who have bad knowledge.

TABLE 2. Relationship of Toothbrush Availability with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Toothbrush availability Yes	32	19.2	156	83.0	188	100	0.205 (0.013-3,366)	0.776
Not	1	50	1	50	2	100		
total	33	17.4	105	57.1	190	100		

The results of the analysis of the relationship between the availability of toothbrushes with brushing behavior is known that there are 32 (17.0 %) respondents with the availability of toothbrushes having the right brushing behavior, while among respondents with no available toothbrushes there is 1 person (50 %) who have the right tooth brushing behavior. The test results obtained value of p = 0.776, it can be concluded there was no difference in the proportion of toothbrushing behavior among respondents with availability toothbrush respondents were not provided toothbrush (no significant correlation between the availability of a toothbrush with behavioral brushing teeth).

TABLE 3. Relationship of Information Exposure with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Information Yes	33	19.2	139	80.8	172	100	1,228 (1,144-2,317)	0.123
Not	0	0.0	12	100	12	100		
total	33	17.4	157	82.6	190	100		

The analyst is the relationship between the exposure information with toothbrushing behavior is known that there were 33 (19.2 %) of respondents were exposed to information mem possess correct toothbrushing behavior, being right among respondents with no exposure information no (0%) having toothbrushing behavior right. The statistical test results obtained p value = 0.123, it can be concluded there is no difference in the proportion of tooth brushing behavior between respondents who have information exposure and respondents who are not exposed to information (there is no significant relationship between information exposure with brushing behavior).

TABLE 4. Relationship of Parent Support with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Parent Support								
Yes	31	18.2	139	81.8	170	100	2,07 (0,443-9,103)	0.536
Not	2	10.0	18	90	20	100		
total	33	17.4	157	82.6	190	100		

The results of the analysis of the relationship between parents with tooth brushing behavior found that there were 31 (18.2%) respondents with family support had the right tooth brushing behavior, while among respondents who did not have parent support there were 2 (10.0%) people who have the right tooth brushing behavior. Statistical test results obtained p value = 0.536, it can be concluded there is no difference in the proportion of tooth brushing behavior between respondents who have family / parent support and respondents who do not get family support (there is no significant relationship between parent / family support with tooth brushing behavior).

TABLE 5. Relationship of Teacher Support with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Teacher Support								
Yes	28	17.8	129	82.2	33	100	1,216 (0,432-3,424)	0.907
Not	5	15.2	28	84.80	157	100		
total	33	17.4	157	82.6	190	100		

The analyst is the relationship between support teachers with toothbrushing behavior is known that there were 28 (17.8 %) of respondents who had the support of teacher mem possess correct toothbrushing behavior, being right among respondents who do not have the support of teachers 5 (15.2 %) people who have the right tooth brushing behavior. The statistical test results obtained p value = 0.907, it can be concluded there is no difference in the proportion of toothbrushing behavior between respondents who receive teacher support or who do not get teacher support (there is no significant relationship between teacher support with toothbrushing behavior).

TABLE 6. Relationship of Health Support with Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P value
	Right		Not true		N	%		
	N	%	N	%				
Health Support								
Yes	33	18.5	145	81.5	178	100	1,228 (1,144-1,317)	0.131
Not	0	0	12	100	12	100		
total	33	17.4	157	82.6	190	100		

Brushing teeth is known that there were 33 (18.5 %) of respondents with the support of health workers mem possess correct toothbrushing behavior, being right among respondents with no support no health officers (0.0 %) who have the right

tooth brushing behavior. The statistical test results obtained p value = 0.131, it can be concluded that there is no difference in the proportion of tooth brushing behavior between respondents who are supported by health workers and respondents who do not get health officer support (there is no significant relationship between health staff support and teeth brushing behavior).

IV. DISCUSSION

The results of data analysis showed that more respondents who had incorrect toothbrushing behavior (82, 6 %) compared to respondents who had the right toothbrushing behavior (17.4%). Correct toothbrushing behavior in this study was obtained when students brushed their teeth at least twice a day and at the right time ie morning after breakfast / breakfast and evening before bed. Data from the 2013 National Riskesdas survey shows that there is an improper habit of brushing almost evenly across all age groups. The correct habit in brushing Indonesian people's teeth is only 2,3 %, while in DKI Jakarta it is only 3.5%. Only 12.8 % of the 12-year age group had the habit of brushing their teeth properly. [10]

The results of this study indicate that the proportion of students who have the right tooth brushing behavior is still very low (17.4%), however when compared with the results of Riskesdas in 2013 it was found that the percentage of students aged 12 years who had the right toothbrushing behavior in the Lebak Bulus sub-district was slightly greater in number.

Clean teeth with how brushing your teeth is one of the most effective and easy way to prevent dental disease. Brushing your teeth should be done twice a day in the morning after eating and at night before going to sleep, this is because at that time the mouth is not active or there is no natural cleaning. Remnants of food that are not cleaned will experience decay, the process of which is assisted by bacteria in the mouth to produce acids that will cause damage to the teeth. [8]

Everyone needs to maintain oral health by way of correct brushing to prevent dental disease. The results of the Workshop Agreement on "Effective Use of Fluoride in Asia" in Phang-Nga, Thailand in 2011, recommended the correct habit of brushing teeth with a frequency of at least twice a day ie after breakfast and before going to bed and using a technique that allows toothpaste to spread evenly distributed throughout the teeth. [3]

Brushing teeth with sufficient frequency and the right time, that is 2 times a day, after breakfast and before going to bed is important to prevent the occurrence of plaque on the surface of the teeth. Plaque is generally formed and will mature within 24-48 hours. If students brush their teeth regularly, the mature plaque will erode due to mechanical cleaning. This results in only the remaining dental plaque that is not yet mature and will have an effect on the PH value of the plaque that is in the normal range. [9]

The low level of correct toothbrushing behavior among sixth grade elementary school students in Lebak Bulus needs to get the attention of various parties, both South Jakarta Health Lebak Bulus Health Center, schools and parents in efforts to improve students' toothbrushing behavior in the

future. The service function is mainly promotive and preventive to elementary students through the School Dental Health Effort/UKGS so that it can be further improved.

The promotion of promotive efforts through counseling on oral and dental health as well as continuous tooth-brushing activities in schools need to be further improved. The results of data analysis showed that there was no significant relationship between the sex of the students and the behavior of students' toothbrushing (P value = 0.560). Regarding these different results, researchers assume that the role of sex alone does not directly influence the behavior of brushing teeth. Environmental factors can also affect a person's behavior when brushing their teeth. In general, elementary school age children have the same behavior in personal hygiene and have not paid much attention to their physical appearance.

The results of the analysis of the relationship between knowledge about the frequency and time of toothbrushing with tooth brushing behavior obtained P value = 0.046, so it can be concluded that there is a significant relationship between student knowledge about the frequency and time of toothbrushing with student behavior in brushing teeth. Opportunities for students with good knowledge of 1,237 times to behave correctly in brushing teeth. The results of this study are in line with research conducted by Dewanti which shows a significant relationship between the level of knowledge about dental health and behavior in school- aged children at SDN Pondok Cina 4 Depok. Then in line with the results of Asmi's study which shows that there is a significant relationship between knowledge about oral health and the act of maintaining oral and dental hygiene. According to Lawrence Green (1980), human behavior or behavior is influenced by three main factors, namely predisposing factors (predisposing factors), enabling factors (enabling factors) and reinforcing factors (reinforcing factors). Predisposing factors is a that predispose behavior in a person or community, among others, the factors of knowledge. [13] The results of this study are in accordance with the theory presented by Notoatmodjo which states that there is a relationship between knowledge and one's behavior. Knowledge or cognitive is a very important domain in shaping one's actions. Behavior that is based on knowledge will be more lasting than behavior that is not based on knowledge.

The results of data analysis showed that there was no significant relationship between the availability of toothbrushes and the behavior of students' toothbrushing (P value = 0.775). According to lack of facilities, infrastructure determining factor for the formation of a person's behavior, as well as toothbrushing behavior. For the formation of good tooth brushing habits, the availability of tools for brushing teeth in the form of a toothbrush must be owned by everyone in accordance with the size of their oral cavity.

Regarding these different results, researchers argue that the availability of a toothbrush alone is not able to make someone behave properly in brushing their teeth. Good knowledge is also needed on how to utilize the toothbrush correctly so that maximum results will be obtained. Based on Information Exposure, it was found that 178 respondents (93.70%) had received information about brushing their teeth, while 12

respondents had never gotten information about brushing their teeth.

The results of data analysis showed that there was no significant relationship between information exposure with the behavior of students' brushing teeth (P value = 0.131). Information exposure is a channel to obtain information and communicate about health in the form of print media, electronic media, and online to facilitate the reception of health messages for the community / elementary school students. The results of the study showed that there was no relationship between information exposure and toothbrushing behavior, possibly because the information obtained by students was unclear about the exact frequency and time of brushing.

The results of data analysis showed that there was no significant relationship between parent/family support and student's tooth brushing behavior (P value = 0.536). Behavior has a very big role on the health status of individuals, groups, and society. In addition, behavior is also influenced by the environment at hand. Humans behave in particular because they are driven by the desire to achieve goals that are useful to him or the existence of motivation. Human motivation to behave in certain ways is influenced by internal factors (from within) and external factors (from outside self / environment). Parents are one of the external factors that can influence children to behave. Parents, especially mothers are key in the family because it plays an important role in education and family health behavior that greatly affects the health of himself and the whole family. Tooth brushing behavior can manifest and develop if the family environment supports this. Parents have an important role in shaping the habits of children to brush their teeth at home.

In this study, there was no significant relationship between parental support and student brushing behavior, possibly because parental support was limited to reminding tooth brushing, but not for the right time to brush teeth, that is after breakfast and especially before going to bed.

The results of the data analysis that no significant correlation between support teachers and pupils toothbrushing behavior (P value = 0.907). This is in line with research conducted by Hutabarat which showed the results of the absence of a relationship between the teacher's role and the behavior of students' toothbrushing. School is a formal institution in which there are curricula, teachers, students, learning methods, learning media and facilities needed to conduct learning activities. In the school community, in addition to the principal, teaching staff or teachers are also involved in dental health education. [14]

The results showed that the teacher's role is already quite large in me m provide dental health education to students, but the matter of frequency and time in brushing teeth need to be emphasized to the students. The results of the analysis of the relationship between health worker support and tooth brushing behavior revealed that there was no difference in the proportion of tooth brushing behavior between respondents who were supported by health workers and respondents who did not have health care support or there was no significant

relationship between health staff support with student brushing behavior.

The results of this study are in line with research conducted by Hutabarat which showed the results of the absence of a relationship between the role of health workers and the behavior of students' toothbrushing. Health workers play a role in improving dental health, also to change people's behavior from unhealthy behaviors towards healthy behaviors. Therefore, health workers are expected to be able to carry out prevention activities, among others, by providing dental health education in schools. [15]

V. CONCLUSION

Based on the research results, it can be concluded: Determinant of tooth brushing behavior in class VI school students is dental health knowledge with p-value 0.046.

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