Relationship Support Behavioral Health with Brushing of Teeth Pupils Elementary School in Lebak Bulus Area, South Jakarta

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Abstract

Dental health is inextricably linked to overall wellness. One of the primary determinants of oral and dental health in poor nations is the behavioral component of dental hygiene, specifically brushing practice. The purpose of this study is to ascertain teeth brushing behavior and the factors that influence it in sixth-grade elementary school children in Lebak Bulus, South Jakarta. The study employed a cross-sectional design with a total sample size of 190 students. The data were gathered using an interview and a questionnaire. The findings indicated that up to 82.6 percent of sixth-grade kids engaged in inappropriate brushing behavior. Statistical analysis revealed a significant association between students' knowledge of the time and frequency of toothbrushing and their brushing behavior (p-value = 0.046). It is proposed that the Ministry of Health of the Republic of Indonesia adopt policies to support the development of dental health programs in school dental health services, particularly in the cognitive domain, attitudes, and behaviors of students who are concerned about their oral health.

Keywords: *Determinant*, *Tooth Brushing Behavior*, *Sixth-Graders.*

A. INTRODUCTION

Health development seeks to raise everyone's awareness, willingness, and ability to live a healthy lifestyle in order to achieve the maximum level of public health, as an investment in the development of socially and economically valuable human resources (Rhode Island Law, 2009). The goal of the 2015 Healthy Indonesia development is to increase everyone's awareness, willingness, and ability to live a healthy life in order to achieve an optimal level of public health through the establishment of an Indonesian people, nation, and state that is defined by its inhabitants living in harmony with their environment and engaging in healthy lifestyle behaviors (Tosepu et al., 2016). The predicted healthy behavior of Indonesians in 2015 is proactive activity aimed at maintaining and improving health, preventing illness risk, and defending against disease risks (Indonesia, 2009).

Dental health is inextricably linked to overall wellness. Dental health is also one component of overall health. It cannot be ignored because oral and dental health also influences the child's perfect growth and development to create healthy, intelligent and productive human beings and have a high fighting spirit (Ministry of Health, 2004). 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 (Ministry of Health, 2011). According to the 2007 Balitbangkes National Health Survey, 75% of Indonesia's population had a history of dental caries, with an average

of five teeth decayed per person, including four teeth that had to be extracted or could no longer be maintained (Ministry of Health, 2008). According to the most recent data given by the Oral Health Media Center in April 2012, between 60 and 90% of school-aged children and nearly all adults worldwide suffer from dental disorders (Conscience, 2015).

Health problems of a person or community, including dental disease, are determined by two main factors, namely behavioral and non-behavioral factors (Notoatmodjo, 2007). According to Bahar, a behavioral component is a significant element affecting the dental and oral health of the population in developing countries. In contrast, according to Petersen (2005), behavior can affect dental health. One of them is the behavior of maintaining dental hygiene by brushing teeth using toothpaste that contains fluorine (Bahar, 2000).

Clean teeth with how brushing your teeth are one of the most effective and easy ways to prevent dental disease (Salzer et al., 2020). Brushing your teeth twice a day is recommended, namely in the morning after eating and at night before bed. This is because the mouth is not active at that time, or there is no natural cleaning (Worthington et al., 2019). Remnants of food that are not cleaned will experience decay, which is assisted by bacteria in the mouth to produce acids that will cause damage to the teeth (Petersen, 2005). Everyone needs to maintain oral health through 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 after breakfast and before going to bed and using a technique that allows toothpaste to spread evenly distributed throughout the teeth (Ministry of Health, 2011).

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 (Ministry of Health, 2013). According to WHO (1997), the 12-year age group is an important age because children will leave primary school, and in many countries, this age group is easily accessible through the school system.

Three major elements influence habit or human behavior: predisposing factors, enabling factors, and factor amplifiers (reinforcing factors) (Fiuza-Luces et al., 2018). Predisposing factors predispose behavior in a person or society: knowledge, attitudes, traditions, belief systems, values related to health in the community, and socio-demographic (age, gender, education level, occupation, etc.) (Vinuesa et al., 2021). Enabling factors support the occurrence of behaviors that facilities, equipment. At the same time, 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 (Notoatmodjo, 2007).

B. METHOD

This research is an analytical survey research with a cross-sectional design 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 variable bound (tooth brushing behavior). The purpose of this study was to ascertain the determinants/factors associated with teeth brushing behavior among sixth-grade elementary school children in South Jakarta's Lebak Bulus subdistrict in 2015.

All sixth-grade primary school pupils in Lebak Bulus Cilandak, South Jakarta, were included in this study. The research sample is a portion of the population of elementary school students in the six classes in Lebak Bulus Cilandak, 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. The minimum number of samples needed was 190 students based on the above calculation. 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. The data analysis was conducted in stages, with univariate analysis followed by bivariate analysis using the Chi-square test.

C. RESULT AND DISCUSSION

1. Univariate Analysis

Below is a table of the results of the univariate analysis of the research variables.

Table 1. Distribution of Respondents Based on Research Variables

No	Variable Research	Total	Percentage
1	Tooth Brushing Behavior		
	True	33	17.4
	Not True	157	82.6
2	Gender		
	Male	92	48.4
	Female	98	51.6
3	Knowledge		
	Well	172	90.5
	Less	1	9.5
4	Toothbrush Availability		
	Available	188	98.9
	Not Available	2	1.1
5	Information Exposure		
	Yes	178	93.7
	No	2	6.3
6	Parental Support		
	yes	170	89.5
	No	20	10.5

7	Teacher Support		
	Yes	157	82.6
	No	33	17.4
8	Health Staff Support		
	Yes	178	93.7
	No	12	6.3

a. Toothbrushing Behavior
Based on the grouping of tooth brushing behavior, it is shown that the majority of respondents had improper brushing behavior, namely 157 people (82.60 %). The remaining 33 people (17.4 %) had the proper tooth brushing behavior. Correct toothbrushing behavior in this study was obtained when students brushed their teeth at least twice a day and at the right time in the morning after breakfast and evening before bed.

b. Gender
According to the gender distribution of respondents, 98 people (51, 60) were female, while 92 people (48.4 0 percent) were male.

c. Knowledge
According to the respondents' knowledge level, it was discovered that the majority of respondents have a good knowledge of up to 172 persons (90,50 percent), while those with less excellent knowledge have a good knowledge of up to 18 people (9.50 percent).

d. Toothbrush Availability
The distribution of respondents based on the availability of toothbrushes found that 188 respondents (98,90 %) already had a toothbrush, while two respondents (1.10%) did not have a toothbrush.

e. Information Limitations
The distribution of respondents based on Information Exposure found that 178 respondents (93.70%) had received information about brushing their teeth, while 12 respondents had never gotten information about brushing their teeth.

f. Parental Support
The distribution of respondents based on the support of parents/families showed that 170 respondents (89,50 %) get support from parents/family, while 20 respondents (10.50%) did not get the support of family/parents.

g. Teacher Supports
The distribution of respondents based on teacher support found that 157 respondents (82.60%) received support from teachers, while 33 respondents (17.40%) did not get support from teachers.

h. Health Staff Support
The distribution of respondents based on teacher support found that 157 respondents (82.60%) received support from teachers, while 33 respondents (17.40%) did not get support from teachers.

2. Bivariate Analysis

a. Relationship Between Gender and Tooth Brushing Behavior

Table 2. Distribution of Respondents by Gender and Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P-*value*
	Right		Not true					
	N	%	N	%	N	%		
Gender								
Male	18	19.6	74	80.4	92	100	0.743 (0.350-1.578)	0.560
Girl	15	15.3	83	84.7	98	100		
total	33	17.4	157	82.6	1 90	100		

The analysis of the relationship between sex and tooth brushing behavior revealed that 18 (19.6%) male respondents had the proper tooth brushing behavior. In comparison, there were 15 (15.3%) respondents who had tooth brushing behavior right among female respondents. The statistical test results obtained a p-value = 0.439, so it can be concluded that there is no difference in the proportion of tooth brushing behavior between male respondents and female respondents (there is no significant relationship between sex with tooth brushing behavior).

b. Relationship of Knowledge with Tooth Brushing Behavior

Table 3. Distribution of Respondents According to Knowledge and Behavior of Brushing Teeth

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. There were 33 (19.2%) respondents with good knowledge of having the correct toothbrushing behavior, whereas respondents with no knowledge of either no 0 (0.0%) were processing behavior brush your teeth properly. The statistical tests yielded a p-value of 0.046. It may be concluded that there are discrepancies in the proportion of respondents with good knowledge and respondents with poor knowledge when it comes to tooth brushing habit (there is a significant relationship between knowledge and tooth brushing behavior).

c. Relationship between Toothbrush Availability and Tooth Brushing Behavior

Table 4. Distribution of Respondents by Toothbrush Availability and 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	.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 are known that there are 32 (17.0%) respondents with the availability of toothbrushes having the proper brushing behavior. In comparison, among respondents with no available tooth-brushes, one person (50%) has the proper tooth brushing behavior. With a p value of 0.318 for the statistic test, it can be inferred that there was no difference in the proportion of respondents with toothbrush availability against respondents who were not given with toothbrush (no hu of significant flower correlation between the availability of a toothbrush with behavioral brushing teeth).

d. Relationship between information Exposure and Tooth Brushing Behavior

Table 5. Distribution of Respondents by Information Exposure and Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P-*value*
	Right		Not true					
	N	%	N	%	N	%		
Information Disclosure								
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 33 (18.5%) 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 tests yielded a p-value of 0.131. It can be inferred that there is no difference in the proportion of respondents who clean their teeth between those who are exposed to information and those who are not (there is any significant relationship between information exposure with brushing behavior).

e. Relationship between Parent / Family Support with Tooth Brushing Behavior

Table 6. Distribution of Respondents According to Parental / Family Support and Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P-*value*
	Right		Not true					
	N	%	N	%	N	%		
Parent / Family 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 analysis of the relationship between parents /family with tooth brushing behavior found that there were 31 (18.2%) respondents with family support who had the proper tooth brushing behavior. In comparison, among respondents who didn't have parent/family support, 2 (10.0%) people have the proper tooth brushing behavior. With a p-value of 0.536 for the statistical test, it can be inferred that there is no difference in the proportion of respondents who receive family/parent support against those who do not (i.e., there is no significant association between parent/family support and teeth brushing behavior).

f. Relationship between Teacher Support and Tooth Brushing Behavior

Table 7. Distribution of Respondents According to Teacher Support and Brushing Behavior Tooth

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 teachers processing correct toothbrushing behavior, being right among respondents who do not have the support of teachers 5 (15.2%) people who have the proper tooth brushing behavior. The statistical tests yielded a p-value of 0.907. It can be inferred that there is no difference in the proportion of respondents who receive teacher support against those who do not receive teacher support (there is any significant relationship between teacher support with toothbrushing behavior).

g. Relationship Support Behavioral Health with Brushing of Tooth

Table 8. Distribution of Respondents According to Health Officers Support and Tooth Brushing Behavior

Variable	Tooth brushing behavior				Total		OR (95% CI)	P-*value*
	Right		Not true					
	N	%	N	%	N	%		
Health Staff 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 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 proper tooth brushing behavior. With a p-value of 0.131 for the statistical test, it can be stated that there is no difference in the proportion of respondents who receive help from health workers and those who do not receive support from health workers in terms of tooth brushing behavior (there is no significant relationship between health staff support and teeth brushing behavior).

3. Discussion

The results of data analysis showed that more respondents had incorrect toothbrushing behavior (82, 6 %) than respondents who had the proper 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, i.e. morning after breakfast/breakfast and evening before bed. Data from the 2013 National Riskesdas survey shows 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 (Ministry of Health, 2013).

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

Clean teeth by brushing your teeth are one of the most effective and easy ways to prevent dental disease. Brushing your teeth should be done twice a day, i.e. in the morning after eating and at night before 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, which is assisted by bacteria in the mouth to produce acids that will cause damage to the teeth (Fejerskov & Kidd, 2008).

Everyone needs to maintain oral health through 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, i.e. after breakfast and before going to bed and using a technique that allows toothpaste to spread evenly distributed throughout the teeth (Ministry of Health, 2011).

Brushing teeth with sufficient frequency and the right time, that is, two 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. The mature plaque will erode if students brush their teeth regularly due to mechanical cleaning. This results in only the remaining dental plaque that is not yet mature and will affect the PH value of the plaque that is in the normal range (Darwita et al., 2011).

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 Sub-dept., 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 to be further improved.

The promotion of promotive efforts through counseling on oral and dental health and continuous toothbrushing 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 link between student knowledge of toothbrushing frequency and time and tooth brushing behavior obtained a P-value of 0.046, indicating that there is a significant relationship between student knowledge of toothbrushing frequency and time and student behavior in brushing teeth. Opportunities for students with good knowledge of 1,237 times to behave correctly in brushing teeth. The findings of this study corroborate those of Dewanti (2012), who discovered a significant association between oral health knowledge and behavior among school-aged children at SDN Pondok Cina 4 Depok. Then, in keeping with the findings of Asmi's (2012) study, there is a substantial association between oral health knowledge and the practice of oral and dental hygiene. According to Lawrence Green (1980), three major elements influence human conduct or behavior: predisposing factors (predisposing factors), enabling factors (enabling factors), and reinforcing factors (reinforcing factors) (reinforcing factors). Predisposing factors predispose behavior in a person or community, among others, the factors of knowledge (Asmi, 2012). The findings of this study corroborate Notoatmodjo's (2007) theory, which asserts that there is a relationship between knowledge and conduct. The realm of knowledge, or cognitive, is crucial in

determining one's behaviors. Knowledge that is based on behavior will persist longer than knowledge that is not based on activity.

The data analysis results showed no significant relationship between the availability of toothbrushes and the behavior of students' toothbrushing (P-value = 0.775). According to Green (in Notoatmodjo, 2007), lack of facilities and infrastructure is a determining factor for the formation of a person's behavior and 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 following the size of their oral cavity.

Regarding these different results, researchers argue that the availability of a toothbrush alone cannot make someone behave properly in brushing their teeth. Good knowledge is also needed on utilizing 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 data analysis results showed 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 print media, electronic media, and online to facilitate the reception of health messages for the community / elementary school students. The study results showed 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 data analysis results showed no significant relationship between parent/family support and student's toothbrushing behavior (P-value = 0.536). Behavior has a huge role in 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 them or the existence of motivation. Human motivation to act in particular ways is influenced by both internal (from within) and external (from outside the self/environment) elements. Parents are one external factor that can have an effect on how children behave. Parents, especially mothers, are critical in the family because it plays an essential role in education and family health behavior that dramatically 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 essential 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 lead to no significant correlation between support teachers and pupils' toothbrushing behavior (P-value = 0.907). This is consistent with Hutabarat's 2009 research in Medan, which demonstrated the absence

of a relationship between the teacher's role and kids' toothbrushing behavior. A school is a formal institution having curricula, teachers, students, instructional methods, instructional media, and the necessary facilities to conduct instructional activities. In the school community, in addition to the principal, teaching staff or teachers are also involved in dental health education (Astoeti, 2006).

The results showed that the teacher's role is already quite significant in providing dental health education to students, but the frequency and time in brushing teeth need to be emphasized. The analysis of the relationship between health worker support and tooth brushing behavior revealed no difference in the proportion of respondents who received health care support versus those who did not receive health care support, or that there was no significant relationship between health staff support and student brushing behavior.

The findings of this study corroborate research completed by Hutabarat in Medan in 2009, which demonstrated the absence of a relationship between health personnel' roles and students' toothbrushing behavior. Health workers play a role in improving dental health and changing people's behavior from unhealthy behaviors to healthy behaviors. Therefore, health workers are expected to be able to carry out prevention activities, among others, by providing dental health education in schools (Hutabarat, 2009).

D. CONCLUSION

The findings of this survey reveal that the proportion of kids who wash their teeth properly is still quite low. The low rate of proper toothbrushing behavior among sixth-grade elementary school pupils in Lebak Bulus requires the attention of a variety of stakeholders. Then, there is a substantial link between student understanding of toothbrushing frequency and time and student brushing behavior. Following that, there was no significant association between toothbrush availability and pupils' toothbrushing behavior. There was also no significant relationship between information exposure and students' brushing habits. This study also found no significant relationship between parent/family support and student's toothbrushing behavior. Lastly, the results showed that the teacher's role is already quite significant in me m provide dental health education to students. Still, frequency and time in brushing teeth need to be emphasized to the students.

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