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# The Impact of Tooth Brushing on the Debris Index of Grade II Students at SDN 225 Gresik

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**ABSTRACT** The average debris index in grade II students of SDN 225 Gresik is included in the bad category. The poor level of debris index for grade II students of SDN 225 Gresik is caused by several factors, including the way they brush their teeth. Debris is food debris that sticks to teeth and gingivas. Brushing your teeth is one of the easiest and cheapest preventive efforts to prevent tooth decay. Good brushing skills can also affect dental and oral hygiene and health, including in reducing food debris, plaque, and other dental problems. The purpose of this study is to determine the effect of brushing teeth on the debris index of grade II students of SDN 225 Gresik. This type of research is analytical research with a cross-sectional design, with a sample of 30 grade II students at SDN 225 Gresik. The data collection instruments used are observation sheets and examination sheets. The data analysis technique uses the Chi-Square test. The results of the research on how to brush the teeth of grade II students at SDN 225 Gresik are in the bad category, which is 53%. The debris index of grade II students at SDN 225 Gresik is in the medium category, which is 47%. The results of this study obtained a p value of 0.000 or a p value of significance below  $\alpha$  (0.05). There is an effect of brushing teeth on the debris index of grade II students of SDN 225 Gresik. There is an effect between the way you brush your teeth on the debris index of grade II students of SDN 225 Gresik.

**KEYWORDS** Brushing Teeth, Elementary School Children, Debris Index.

## I. INTRODUCTION

In general, the condition of dental and oral hygiene of elementary school children is very poor [1]. This can be caused by a lack of ability in them to maintain dental and oral hygiene, such as improper brushing of teeth. The prevalence rate of dental and oral problems in Indonesia is 57.6% of the results of Basic Health Research (2018). In addition, the average percentage of the OHI-S index is 1.46% in Indonesia [2]. However, the national target for the OHI-S index is <1.2 in the good [3]. This OHI-S value is the result of the total of the debris and calculus in the teeth.

Debris on the tooth surface can be determined using the debris index. Debris index is the score of debris contained in the surfaces of the determining teeth. The measurement was carried out to determine the surface of the teeth that were covered by debris. [4]. Debris is food residue that contains bacteria that stick to teeth and gingivares [5]. The cause of debris is from plaque or food scraps that are not cleaned immediately which if left for a long enough period will harden into tartar and will have an impact on the onset of

several types of dental and oral diseases, such as dental caries [6].

The population of Indonesia who regularly brush their teeth reaches 96.8%, but there are only 2.8% when brushing their teeth at the right time such as the morning after breakfast and the night before going to bed based on Risesdas data in 2018 [7]. However, the percentage of brushing behavior for residents in East Java every day is 94.5% with the percentage of time brushing teeth correctly is only a certain number of 1,8% [8]. This proves that the level of awareness of dental and oral hygiene in most of the population still needs deep attention for its handling, especially elementary school age children. The age of elementary school is a sufficient time to teach children's motor skills, including brushing skills [9]. This is because in that phase it is a critical period for children in dental growth or intellectual development and a special approach is needed to improve knowledge, attitudes, and healthy actions, especially regarding the correct way to brush teeth [10].

## II. METHOD

This research was conducted at SDN 225 Gresik, from January to March 2024. This study is analytical research with a type of cross-sectional research. The population in this study is grade II students of SDN 225 Gresik with a minimum sample of 30 students. Sampling is carried out using a total sampling technique, which is a sampling technique where the number of samples used is as much as the available population [11].

## III. RESULTS

**TABLE 1**

Distribution of Respondents Based on the Characteristics of Grade II Students at SDN 225 Gresik in 2024

Characteristic	Frequency	Percentage (%)
Gender:		
Male	16	53%
Female	14	47%
Age:		
8 Years	22	73%
9 Years	8	27%
Total	30	100%

Based on **TABLE 1**, it was obtained about 30 respondents, most of the respondents were males with a total of 16 students (53%) and females, namely 14 students (47%) and most respondents from this study had an age of 8 years as many as 22 students (73%) while those aged 9 years were 8 students (27%).

**TABLE 2**

Frequency Distribution of How to Brush Teeth for Grade II Students at SDN 225 Gresik in 2024

Characteristic	Frequency	Percentage (%)
Good	0	0%
Medium	14	47%
Bad	16	53%
Total	30	100%

Based on **TABLE 2**, the results regarding the size of students were obtained, there were 16 students (53%) and 14 students (47%) in the medium category, while there were no students in the good category.

**TABLE 3**

Debris Index Frequency Distribution for Grade II Students at SDN 225 Gresik in 2024

Category	Frequency	Percentage (%)
Good	9	30%
Medium	14	47%
Bad	7	23%
Total	30	100%

Based on **TABLE 3**, the results regarding the debris index were obtained with a medium category of 14 students (47%), a bad category of 7 students (23%) and a good category of 9 students (30%).

**TABLE 4**

Results of Chi Square Test Analysis of the Effect of Brushing Teeth on the Debris Index in Grade II Students at SDN 225 Gresik in 2024

Debris Index									P value
	Good		Medium		Bad		Total		
	F	%	F	%	F	%	F	%	
Good	0	0	0	0	0	0	0	0	
Medium	11	37	3	10	0	0	14	47	
Bad	0	0	10	33	6	20	16	53	
Total	11	37	13	43	6	20	30	100	

Based on **TABLE 4** in the tabulation, data was obtained, namely 0.000 ( $p < 0.05$ ) for the p value, then for H1 it was accepted and H0 was rejected, thus it was possible to draw a conclusion that there was a significant influence on the way of brushing teeth on the debris index in grade II students of SDN 225 Gresik.

## IV. DISCUSSION

Based on the results of research on how to brush teeth in grade II students, the way to brush students' teeth is classified as poor. This is because most students still apply movements that are not appropriate. Based on the results of the data that has been obtained, students still brush the front teeth with horizontal movements and miss parts that are difficult to reach such as the posterior, lingual and palatal teeth.

In line with the results of the study [12]. That most of the students in grades I-II MI Sendang Drajat Kec. Jambon Ponorogo in 2021 were classified as lacking, it was reviewed when the observation was carried out that most of the students were wrong when carrying out brushing movements in the labial, buccal, palatal, and lingual sections [13].

This behavior can be due to a lack of support from parents in maintaining dental hygiene, teachers' knowledge that is still lacking in maintaining dental hygiene so that they are still lacking in providing education related to how to brush their teeth correctly for their students, or the methods of health workers when conducting counseling are still not understood by students [14]. That there needs to be guidance and motivation from the closest people for children aged 6-12 years so that they can brush their teeth with the right movements [15].

This behavior can be due to the lack of knowledge of students about the duration of brushing their teeth correctly and correctly so that they are limited to brushing their teeth in a hurry and feel that the surface of their teeth has been brushed cleanly. Therefore, there needs to be guidance and motivation from the closest people to school-age children so that they can brush their teeth for the right duration [16].

Brushing your teeth in the right way, for example, brushing the front with an up-down movement, the part facing the palate and the one facing the tongue with a squeaking motion, and the part facing the cheek with a circular motion so that the entire surface of the teeth can be cleaned optimally and there is no food residue attached to it [17]

Lack of knowledge related to how to brush teeth properly for grade II students of SDN 225 Gresik so that students have poor brushing skills, so there is a need for promotional and preventive efforts. For example, it can be carried out by carrying out UKGS activities, one of which is to conduct dental health counseling and brushing teeth together regularly [18].

In addition, some students still like to consume sweet and sticky foods and do not gargle afterwards so that leftovers will be more difficult to clean. These results are in accordance with the results of the study [19]. Regarding debris, most of the 3rd grade students at SDN Sibolga City have a medium category, namely 16 people (80%). This is since many students still consume sweet and sticky snacks during recess [20].

Debris as food residues left in the oral cavity that are attached to the surface of the teeth as well as gingiva teeth that are not cleaned immediately. Sticky foods such as candy and chocolate can stick to the surface of the teeth within a time of more than 1 hour, while juicy foods such as carrot juice or apple juice are much easier to clean [21].

Although the dental hygiene and creep of students for this study are moderate, there are still students who have a bad debris index. This can be influenced by the lack of awareness of dental hygiene for students due to the knowledge and competence of students to maintain minimal dental and oral hygiene such as how to brush their teeth correctly.

On the other hand, only a few students have good dental hygiene. This can be seen in the results of the debris score in this study that there is no value or value of 0 on the index when the examination is carried out. This can happen because students still do good habits such as consuming fruit, gargling after eating, or rarely consuming sweet and sticky foods [22].

These habits can be influenced by the factor of parents who have proper awareness related to dental and oral health so that they are able to clean up guidance and good knowledge in their children [23]. Based on the results of the initial data that has been obtained previously, the student debris index is in the bad category and after conducting research related to brushing students' teeth, it turns out that some of the methods are still not appropriate, but the debris index category is moderate. The decrease in debris can be caused by some students being able to brush their teeth in hard-to-reach parts and some students have gotten used to gargling after eating or consuming fruits that contain more

water. In line with the opinion [21]. That debris can be cleaned mechanically. Mechanical methods that can reduce debris such as gargling and brushing teeth.

Supported by the results of the study [24]. Which stated that a meaningful and significant correlation value was found from the variable frequency of brushing against the debris index, a conclusion was obtained regarding the influence of the frequency of brushing on the debris index.

The results of the study on the effect of brushing teeth on the debris index are associated with the theory of Benjamin Bloom (1908) showing that the way of brushing students' teeth (psychomotor) is still in the bad category. This can be seen in the results of research that has been carried out that most students still have errors when brushing their teeth on the lingual and palatal teeth. This habit, if allowed to continue, can affect the level of dental and oral hygiene of SDN 225 Gresik students. Thus, support is needed for parents, teachers, or health workers so that students can carry out good habits related to dental and oral maintenance.

Therefore, it is important to provide education to grade II students regarding correct brushing, so that it can improve their knowledge (cognitive) including the importance of brushing in the palatal and lingual parts, as well as telling the correct movements when brushing the posterior part of the teeth where in these parts some students are still not optimal in their movements so that it can cause the accumulation of debris in those parts [25]. Knowledge is a very important domain in creating a person's overt behavior. Behaviors based on knowledge can be more embedded than behaviors that are not based on knowledge [26].

Furthermore, if students already know and understand how to brush their teeth properly, then students will have a desire (affective) to brush on parts that were previously missed or difficult to reach. In addition, a good attitude in students can also increase students' awareness related to maintaining dental hygiene such as reducing cariogenic foods and increasing the consumption of fruits and vegetables so that it can reduce debris on their teeth [27].

Not only that, but the results of this study are also in line with H.L Blum's (1974) theory that health status (debris) can be caused by 4 factors. These various factors include health services, heredity, behavior, and environment. The environment is very important to have an influence on dental and oral hygiene. Like students in unhealthy environments, in these unhealthy contexts are individuals who are around students who consume a lot of sweet and sticky foods. Food is digested through the mouth, so the food residue contained in the teeth will be replaced by acid and for a long time creates holes. Health services, there is an important role of health workers, not only carrying out curative efforts for students must be balanced also in promotive and preventive efforts, such as counseling or joint toothbrushing activities.

If dental hygienists actively convey school dental health business activities so that they can affect the condition of

teeth and mouth in students. Heredity, in this context, the structure of the arrangement of teeth and jaws in parents is passed down to their children. For example, for crowded tooth arrangements, food residue contained in the teeth is difficult to clean, thus affecting the hygiene of teeth and mouth. In this study, the behavioral factors of grade II students related to how to brush their teeth affect the hygiene of their teeth and mouth. In addition, for the behavior of students who have bad brushing habits, they tend to have a moderate debris category[28].

This low awareness and understanding will affect SDN 225 Gresik students in improving changes in the correct way of brushing their teeth so that it can affect the degree of good dental and oral hygiene. So the theory of the results of the study is appropriate, because there is a relationship between how to brush teeth and the debris index obtained after the study.

## V. CONCLUSION

How to brush the teeth of grade II students of SDN 225 Gresik is included in the bad category, Debris index of grade II students of SDN 225 Gresik is included in the medium category and there is an influence of how to brush students' teeth on the debris index of grade II students of SDN 225 Gresik.

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