

## THE RELATIONSHIP BETWEEN BRUSHING HABITS AND ORAL HYGIENE STATUS (OHI-S) IN STUDENTS OF SD NEGERI KANDANG CUT, DARUL IMARAH DISTRICT, ACEH REGENCY

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### ARTICLE INFO

eISSN: 2830-7186

DOI Prefix: 10.30867

Published online Desember 2023

Received: November 14, 2023

Accepted: November 18, 2023

Published: December 15, 2023

### Keywords:

Keywords 1; Dental and Oral Health Services

keywords 2; Patient Satisfaction

keywords 3; Covid-19

### ABSTRACT

Regular teeth cleaning is a treatment for dental and oral diseases that can be done alone. How to brush your teeth properly and appropriately will help improve dental and oral hygiene so as to prevent the occurrence of periodontal disease and caries. The purpose of the study was to determine the relationship between brushing teeth and oral hygiene in grade IV and V students of SDN Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022. The research was conducted using analytical methods from 18 to 21 April 2022. The study population numbered 40 people. The number of samples taken in this study used a saturated sample of 40 students. Data collection by checking dental and oral hygiene using OHIS index and observation of how to brush teeth using checklist. The analysis used univariate and bivariate analysis using a statistical chi-square test  $\alpha < 0.05$ . The results of the study of students who brushed their teeth correctly had the most dental and oral hygiene status on good criteria amounted to 7 respondents (70%) while students who brushed their teeth incorrectly had the most dental and oral hygiene status on bad criteria amounted to 15 respondents (50%). The results of the chi-square statistical test obtained P Value <from  $\alpha$  namely  $P = 0.001 < 0.05$ , then there is a relationship between how to brush your teeth with dental and oral hygiene. It was concluded that there is a relationship between brushing teeth and oral hygiene in grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022. It is recommended for students to improve and apply how to brush their teeth properly and correctly, especially on the inside that is often overlooked.

### INTRODUCTION

Dental and oral health problems are vulnerable problems faced by children of elementary school (SD) age. Dental problems in school-age children arise due to poor dental care. Dental problems experienced by schoolchildren include dental caries, malocclusion and periodontal. The causes of dental problems include tooth size that is larger than jaw size, the type of food consumed by children is more soft / soft, sweet and sticky, the length of time food remains in the mouth that is not quickly cleaned, lack of maintaining oral and dental hygiene such as improper brushing habits, improper brushing time habits and improper use of toothpaste (Andini & Tjahyadi, 2011).

The potential for good and correct brushing is quite an important factor for the

maintenance of healthy teeth and mouth. The success of maintaining healthy teeth and mouth is also influenced by factors such as the use of tools, tooth brushing methods, and the frequency and time of proper brushing. This group of school-age children is a vulnerable group for dental and oral health cases, so it needs to be watched out for or managed properly and correctly (Muhammad Ilyas & Indah Nisita Putri, 2012)

How to brush your teeth properly and appropriately will help improve dental and oral hygiene so as to prevent the occurrence of periodontal disease and caries (Dewi A. Hamadi et al., 2015). According to Ginandjar (Essa damayanti, 2020), brushing your teeth before eating and before going to bed is a routine activity that must be done daily. The goal is to obtain healthy teeth and mouth and breath to be fresh.

There are several different ways of brushing your teeth, what needs to be considered when brushing your teeth is how to brush must be able to clean all deposits on the surface of the teeth and gums properly, especially the gum pockets and interdental spaces (spaces between teeth). The movement of the toothbrush does not damage the gum tissue and abrasion the tooth layer by not cleaning excess pressure. How to brush your teeth should be fast and efficient. The frequency of brushing teeth is a maximum of 3 times a day (after breakfast, lunch and before going to bed at night) or at least 2 times a day (after breakfast and before going to bed at night).

Riskesda data (Kementerian Kesehatan RI, 2018) shows that the percentage of the Indonesian population who have dental and oral health problems in 2013 and 2018 increased from 25.9% to 57.6%. Aceh Province shows a prevalence of dental and oral problems of 56%. For correct behavior in brushing teeth it was found that only 2.8% of the Indonesian population behaved correctly in brushing their teeth, while Aceh Province showed the prevalence of people who behaved correctly in brushing their teeth by 28%. (Kementerian Kesehatan RI, 2018)

Brushing your teeth is cleaning your teeth from food debris, bacteria and plaque. In cleaning teeth, you must pay attention to the implementation of the right time in cleaning your teeth, therefore, the habit of brushing your teeth is a human behavior in cleaning teeth from food debris that is carried out continuously (Sari, 2014).

The recommended duration of brushing is at least 5 minutes, but this is actually too long. Generally, people do tooth brushing maximum 2 minutes (Putri & Meganda Hiraya, 2014). When brushing your teeth is done in a short time, the results are not so good when compared to brushing your teeth done for a long time, considering the number of tooth surfaces that must be cleaned. But this cannot be used as a benchmark for the success or failure of someone in brushing their teeth because it still depends on the technique and time of brushing teeth (Journal et al., 2020).

Brushing Techniques Tooth brushing techniques can be classified into six groups based on the type of movement performed (Putri & Meganda Hiraya, 2014), namely:

#### 1) Vertical Technique

The vertical technique is performed with both jaws closed, then the buccal surface of the is

brushed with upward and downward movements. To lingual and palatal surfaces performed the same movements with an open mouth.

2) Horizontal Technique Buccal and lingual surfaces are brushed with forward and backward movements. For occlusal surfaces, horizontal movements often called "technic scrub brushes" can be performed and proven to be a way that matches the anatomical shape of occlusal surfaces. Most people who have not been given special education, usually brush their teeth with vertical and horizontal techniques with hard pressure, these methods are not good because they can cause gum recession and tooth abrasion.

3) Stillman Roll and Modification Techniques This technique is called "ADA-roll Technic" and is the most commonly recommended way because it is simple but efficient and can be used in all parts of the mouth. The brush bristles are placed on the gums as far as possible from the occlusal surface with the tips of the brush bristles leads to the apex and the sides of the brush bristles are moved slowly through the tooth surface so that the back of the brush head moves with its arch. When the brush bristles pass through the clinical crown, it is positioned almost perpendicular to the enamel surface. This movement repeated 8-12 times each area systematically so that nothing is missed. This method mainly results in gum massage and also it is desirable to clean food debris from the interproximal area.

4) Vibratory Technique a) Charter Engineering On buccal and labial surfaces, brushes are held with stalks in a horizontal position. The tips of the feathers are placed on the surface of the teeth forming an angle of 45° to the long axis of the teeth towards the occlusal. Be careful not to puncture the gums. In this position the side of the brush bristles is in contact with the edge of the gums, while the tips of the bristles are on the surface of the teeth. Then the brush is pressed in such a way. Shape so that the edges of the brush bristles go into the interproximal and the sides of the brush bristles press against the edges of the gums. Brush vibrated in small arches so that the brush head moves circularly, but the edges of the brush bristles must remain in position originally. So in this technique the occlusal region as well as to the apical. Thus the edges of the brush bristles will release debris from tooth surfaces and sides of brush bristles massaging the edges of the gums and gums interdental.

5) Fones Technique or Circular Technique The brush bristles are placed perpendicular to the buccal and labial surfaces with the teeth in an occlusion state. The brush is driven in large circles so that the teeth and gums of the upper jaw and jaw. The bottom can be brushed at once. Interproximal regions are not given special attention. After the buccal and labial surfaces are brushed, the mouth. The lingual and palatal surfaces are brushed with the same motion, only in smaller circles. Because of movement This is quite difficult to do in the lingual and palatal regions so back and forth movements can be made for these areas. This technique is done to mimic the course of food in the mouth when chewing. The fones technique is recommended for young children because it's easy to do.

6) Physiological Engineering For this technique used toothbrush with soft bristles. The stalk is held horizontally with brush bristles perpendicular to the tooth surface. This method is based on the assumption that tooth brushing should resemble the course of food, that is, from teeth to gums. This technique is difficult to perform on the lingual surface of the premolars and molars of the lower jaw can thus be replaced by vibrational movements in small circles.

According to Green and Vermillion, to measure dental and oral hygiene using an index called the Simplified Oral Hygiene Index (OHIS). OHIS is the result of the sum of the debris index and calculus index (Herijulianti et al., 2009).

According to (Herijulianti et al., 2009), to assess the cleanliness of a person's teeth and mouth that is seen is the presence of debris (plaque) and calculus on the surface of the teeth. Clinical examinations are carried out to facilitate assessment. Debris and calculus examinations are performed on certain teeth and on certain surfaces of those teeth, namely: For the upper jaw: a. Right upper M1 tooth (16), on buccal surface b.

Right upper I1 tooth (11), on the labial surface c. Upper left M1 tooth (26), on the buccal surface For the lower jaw: a. Lower left M1 tooth (36), on the lingual surface b. Lower left I1 tooth (31), on the labial surface c. Right upper M1 tooth (46), on the lingual surface.

According to Greene and Vermilion, the criteria for assessing debris and calculus are the same, which follow the following conditions: Good: if the value is between 0.0 – 0.6 Medium : if the value is between 0.7 – 1.8 Bad: if the value is between 1.9 – 3.0 OHI-S has its own criteria, which follow the following conditions: Good: if the value is between 0.0 – 1.2 Medium : if the value is between 1.3 – 3.0 Bad : if the value is between 3.1 – 6.0. The population in this study is all grade IV and V students at SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022. The sample uses a saturated sampling technique, where all populations are sampled, namely 40 students.

## METHOD

This type of research is analytical, namely to determine the relationship between Brushing Teeth and Oral Hygiene in students at SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022". The population in this study is all grade IV and V students at SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022. The sample uses a saturated sampling technique, where all populations are sampled, namely 40 students. The instruments used in this study were checklist, patient status card, diagnosis set and OHI-S index.

## RESULTS

Data collection was carried out from 18 to 21 April 2022 on 40 grade IV and V students at SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022"

**Table 1 Frequency Distribution of Respondents According to Age in SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar**

No	Umur	Jumlah	Persentase (%)
1	9	12	33 %
2	10	13	32,5 %
3	11	15	37,5%
	Total	40	100

Based on table 1, the age of students in this study was between 9-11 years. The results of univariate analysis of children's age showed that

the highest percentage of children was in the 11-year group (37.5%).

**Table 2. Distribution of Respondents' Frequency Based on Brushing Teeth in Grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022**

No	How to brush your teeth	Total	Percentase
1	Correct	10	25%
2	Not true	30	75%
	<b>Total</b>	<b>40</b>	<b>100%</b>

Based on table 2 above, it can be seen from 40 respondents based on brushing their teeth in grade IV and V students of SD Negeri Kandang Cut,

which is the most in the category of brushing teeth incorrectly 30 respondents (75%).

**Table 3. Distribution of respondents' frequency based on dental and oral hygiene in grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022**

No	Dental and Oral Hygiene	Frekuensi	%
1	Good	11	27,5
2	Keep	14	35
3	Bad	15	37,5
	<b>Jumlah</b>	<b>40</b>	<b>100</b>

Based on table 4 above, it can be seen from 40 respondents based on dental and oral hygiene in grade IV and V students of SDN Kandang Cut, which is the most in the medium

category, namely 15 respondents (42.5%). dissatisfaction with 2 people with a percentage of 4.3%.

**Table 4. The Relationship between Brushing and Oral Hygiene in Grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022**

	Cara Menyikat Gigi	Dental and Oral Hygiene						Total	%	Statistic al Test Results
		Good		Keep		Bad				
		F	%	F	%	F	%			
1	Correct	7	70	3	30	0	0	10	100	X <sup>2</sup> =13,853 p = 0,001 df = 2 α = 0,05
2	Not True	4	13,3	11	36,7	15	50	27	100	
	<b>Jumlah</b>	<b>11</b>	<b>27,5</b>	<b>14</b>	<b>35</b>	<b>15</b>	<b>37,5</b>	<b>40</b>	<b>100</b>	

Based on table 4, it shows that students who brush their teeth correctly who have the most dental and oral hygiene status on good criteria are 7 respondents (70%) while students who brush their teeth incorrectly have the most dental and oral hygiene status on bad criteria by 15 respondents (50%). Based on the results of the chi-square statistical test, P Value < from α namely P = 0.001<0.05, then there is a relationship between brushing teeth and oral hygiene.

**DISCUSSION**

The results showed that there was a relationship between brushing teeth and oral hygiene in grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022 (P = 0.001<0.05). According to the researchers' assumptions, brushing your teeth will affect the hygiene status of your teeth and mouth. How to brush your teeth properly and appropriately will help improve dental and oral hygiene so as to prevent the occurrence of periodontal disease and caries. Some respondents may have known information on maintaining

dental and oral hygiene correctly through counseling or advertising media and applied it at home so that the way they brush their teeth is correct. Meanwhile, improper brushing will also affect dental and oral hygiene because if the method is not right, the remnants of food are still attached to the tooth layer. This is in accordance with Pratiwi's theoretical research (Pratiwi & Donna, 2009) even though they have brushed their teeth twice a day, but most people still have plaque in their mouths, this shows that the cleaning method is not appropriate.

Elementary school age is an ideal time to train a child's motor skills, including brushing teeth and food consumed, cariogenic foods will more quickly make teeth damaged and more difficult to clean compared to fibrous foods such as fruits and vegetables. (Hurlock & Elizabeth B, 2017) states that a person's age can affect knowledge, the older a person is, the more likely the knowledge and experience he has. The age of 10-12 years is the right age to do things wisely and act according to the rules compared to the age below. The older a person is, the more mature and better he will be in thinking and acting with the increase in knowledge and experience he has.

The results also showed that some students had brushed their teeth the right way on the front facing the lips with an up and down motion, the outer back teeth facing the cheeks with a circular motion, the molars masticatory part back and forth, but many respondents still did not correctly even skip to brush their inner teeth. According to the researchers' assumptions, this is because some students do not understand or do not know how to brush their teeth. Students only understand brushing that is important to have been brushed, students are less aware that brushing teeth must pay attention to brushing movements on each tooth surface.

According to the theory, brushing teeth with the right movements causes plaque to be cleaned more effectively and prevents caries from occurring on the teeth (Joanna Asadoorian, 2006).

According to the assumption of researchers, the role of parents is very important in this case, parents must know or find out information on how to brush their teeth properly and teach how to brush children's teeth properly, get used to it, and give an understanding of the bad effects if they don't brush their teeth. This is in accordance with the theory put forward by (Indra Fauzi, 2016) Edelman, 2006 Parents and family are the first social environment in which a

human being interacts. The individual learns not only by how he interacts with his parents or other family members, but also by looking at how his parents or family members interact with him or how they interact with each other. Parents and other family members provide a model of life skills learned by the individual in the early years of life. Parents can play their part in improving good habits in brushing teeth to prevent a high prevalence of dental caries in school-age children. Parents play a role in addition to supervising also teaching good habits and providing reinforcement or positive feedback when children carry out good habits in caring for teeth. Good habits in brushing teeth in children can be improved through teaching and reinforcement of behavior from parents.

## CONCLUSION AND RECOMMENDATION

Conclusion Based on the results of research and discussion, it can be concluded that there is a relationship between brushing teeth and oral hygiene in grade IV and V students of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022 ( $p = 0.001 < 0.05$ ).

It is hoped that students in grades IV and V of SD Negeri Kandang Cut, Darul Imarah District, Aceh Besar Regency in 2022 will be able to improve and apply good and correct methods of brushing their teeth, especially on the inside parts which are often overlooked. It is hoped that teachers can provide guidance and motivation for students in maintaining oral hygiene. It is hoped that dental health officers will pay more attention to improving the maintenance of dental and oral health for students by providing regular education about dental and oral health.

## Reference

1. Andini, A. D., & Tjahyadi, T. (2011). *Gigi Sehat Ibadah Dahsyat*. Pro-U Media.
2. Dewi A. Hamadi, Paulina N. Gunawan, & Ni Wayan Mariati. (2015). *GAMBARAN PENGETAHUAN ORANG TUA TENTANG PENCEGAHAN KARIES DAN STATUS KARIES MURID SD KELURAHAN MENDONO KECAMATAN KINTOM KABUPATEN BANGGAI. Vol 3 No 1*.
3. Essa damayanti. (2020). *Gambaran Pengetahuan Menyikat gigi dan status kebersihan gigi dan mulut pada siswa sekolah dasar*. Poltekes Kemenkes Yogyakarta.

4. Herijulianti, Eliza, Megananda Hp, & Neneng Nurjannah. (2009). *ilmu pencegahan penyakit jaringan keras dan jaringan pendukung gigi*.
5. Hurlock, & Elizabeth B. (2017). *Psikologi Perkembangan* (5th ed.). Erlangga.
6. Indra Fauzi. (2016). *Hubungan konsumsi makanan kariogenik dan kebiasaan menggosok gigi dengan karies pada anak sdn 2 Cireunde di Tagerang Selatan*. UIN Syarif Hidayatullah.
7. Joanna Asadoorian. (2006). Tooth brushing. *Canadian Journal of Dental Hygiene*, 1–14.
8. Journal, P., Panjaitan, M., Anastasia, I., Adhana, A., Artikel Abstrak, I., & Author, C. (2020). Perbedaan efektivitas sikat gigi elektrik dengan sikat gigi manual dalam penurunan indeks plak pada anak-anak tunanetra. *Prima Journal of Oral and Dental Sciences*, 3(2), 33–38.  
<https://doi.org/10.34012/primajods.v3i2.2681>
9. Kementerian Kesehatan RI. (2018). *Hasil Utama Riskedas*.
10. Muhammad Ilyas, & Indah Nisita Putri. (2012). Efek penyuluhan metode demonstrasi menyikat gigi terhadap penurunan indeks plak gigi pada murid sekolah dasar. *Journal of Dentomaxillofacial*.
11. Pratiwi, & Donna. (2009). *Gigi Sehat dan Cantik*. PT Kompas Media.
12. Putri, & Meganda Hiraya. (2014). *Ilmu Pencegahan Penyakit Jaringan Keras dan Jaringan Pendukung Gigi*. EGC.
13. Sari, S. A. (2014). *Hubungan kebiasaan Menggosok Gigi Dengan Timbulnya Karies Gigi Pada Anak Usia Sekolah Dasar Kleas 4-6 Di SDN Ciputat 6 Tagerang Selatan Provinsi Banten Tahun 2013*. 15–15.