

RESEARCH ARTICLE

OPEN ACCESS

Manuscript received January 23, 2025; revised March 22, 2025; accepted March 22, 2025; date of publication April 30, 2025

Digital Object Identifier (DOI): 6<https://doi.org/10.35882/ijahst.v5i1.429>

Copyright © 2025 by the authors. This work is an open-access article and licensed under a Creative Commons Attribution-ShareAlike 4.0 International License ([CC BY-SA 4.0](https://creativecommons.org/licenses/by-sa/4.0/))

How to cite: **Lorenza Vrinda Marcelyan, Imam Sarwo Edi, Silvia Prasetyowati, and Isnanto**, "Knowledge About Dental Caries in Class VI A Students of SDN Wonokromo 1 Surabaya", International Journal of Advanced Health Science and Technology, vol. 5, no. 2, pp. 27-32, April 2025

# Knowledge About Dental Caries in Class VI A Students of SDN Wonokromo 1 Surabaya

**Lorenza Vrinda Marcelyan<sup>1</sup>, Imam Sarwo Edi<sup>1</sup>, Silvia Prasetyowati<sup>1</sup>, Isnanto<sup>1</sup>, and Anshad Ansari<sup>2</sup>**

<sup>1</sup> Department of Dental Health, Politeknik Kesehatan Kemenkes Surabaya, Indonesia

<sup>2</sup> Diploma in Oral Health Therapy at Nanyang Polytechnic, Singapore

Corresponding author : Lorenza Vrinda Marcelyan (e-mail : [lorenzaavrindaaa@gmail.com](mailto:lorenzaavrindaaa@gmail.com)).

**ABSTRACT** According to WHO, 12 year old children are Global Monitoring of Dental Caries, because all permanent teeth of 12 year old children have grown except for the third molars. The problem in this study is the DMF-T figure in class VI A students at SDN Wonokromo 1 Surabaya in 2022, the DMF-T results were 3.7, which is included in the moderate category. The study aims to determine the knowledge of class VI A students of SDN Wonokromo 1 about dental caries in Wonokromo District, Surabaya City. The type of research used is descriptive research, with 30 students as respondents. The data collection method uses a questionnaire method. Data analysis techniques by calculating the average answer from respondents. The results of this study show that students' knowledge about the definition and causes of dental caries is included in the good criteria, knowledge about the effects of dental caries is included in the good criteria, knowledge about how to prevent dental caries is included in the good criteria, and knowledge about dental caries treatment is included in the moderate criteria, so it can be concluded that the knowledge of class VI A students of SDN Wonokromo 1 Surabaya is included in the good criteria.

**INDEX TERMS** Knowledge, Dental Caries

## I. INTRODUCTION

Dental caries or what is generally known by the public in the term of porous and cavities as a stage of demineralization that is influenced by the relationship between the products of saliva organisms, or residues that come from food and enamel. Dental caries as one of the results when not caring for the condition of the teeth and mouth [1]. WHO in Ryzanur (2021) stated that children aged 12 years are "Global Monitoring of Dental Caries" because all permanent teeth of children aged 12 years have grown except for the third molar teeth [2].

The problem of dental caries in East Java Province has an average of 42.44%, while the city of Surabaya has an average of dental caries problems that is almost close to the East Java average, namely 36.14% obtained from the 2018 Basic Health Research Results [3]. The 10-14 year old age group has a higher average caries rate than the average caries rate in Surabaya City, which is 36.25% according to the East Java Riskesdas [3].

One of the components that affect dental caries is the level of knowledge, action, and attitude. Knowledge related to dental caries is obtained from complex cognitive stages [4]. Lack of knowledge can be the basis for minimal attitudes towards maintaining dental and oral health, because children in the age range of 6-12 years still do not understand how to maintain dental and oral health [5].

According to [6], dental caries for school children causes children to have digestive disorders and weak chewing power, with an impact on growth that is less than optimal. This condition can certainly reduce the frequency of children's attendance at school, have an impact on appetite and food intake, interfere with learning concentration, then can affect nutritional status and finally can have an impact on physical growth disorders. Efforts to maintain dental and oral health should be carried out as early as possible so that dental caries can be overcome and will not occur for school-age children [7]. One of the preventive and treatment measures for caries in children according to Wati (2020), by having knowledge of everything related to caries [1].

The most common dental caries index value uses the DMF-T indicator. The DMF-T index is the sum of the quantity of damaged permanent teeth in a person's oral cavity, including Decay (cavities or carious teeth), Missing (teeth removed due to caries), Filling (teeth filled due to caries) (Nur Hasanah et al., 2019). According to WHO, in [9] classification of measurements of the DMF-T index, including: very low = 0.0-1.1; low = 1.2-2.6; moderate = 2.7-4.4; high = 4.5-6.5; very high = >6.6. According to WHO Nadialistha Kurniawan (2021) in WHO has a DMF-T index target for children aged 12 years, namely < 1 [10]. Based on the results of the DMF-T examination carried out with 30 class VI A students at SDN Wonokromo 1 Surabaya on November 17, 2022, the DMF-T results were 3.7, which is included in the moderate classification. So the problem for this study is that the DMF-T figure for class VI A students at SDN Wonokromo I Surabaya is included in the moderate classification.

The results of knowing that are done by someone through sensing are called knowledge [11]. Children's knowledge about dental caries can be obtained from parents, teachers, and health workers. Low levels of student knowledge can reduce health levels. Especially dental and oral health. Low knowledge is one of the causes caused by minimal information from health workers. If cariogenic food is sweet food that contains sugar and sucrose, it can have an impact on the presence of dental caries or cavities. According to the habits of students who usually consume foods with sweet or sticky properties every day because students find cariogenic food sellers around their school, the cariogenic foods that students buy such as cotton candy, candy, chocolate, biscuits, snacks, etc. Not only do they have a sweet and delicious taste, they are easy to obtain, the price is also relatively cheap, and they are popular with children. With the amount of cariogenic food consumed every day uncontrolled [12]. Diet is something that is closely related to the presence of dental caries, especially for elementary school children. Elementary school children usually really like to eat foods with sweet and cariogenic properties.

If the food residue on the surface of the teeth becomes one of the causes of caries. Then the method that can be applied such as by brushing teeth. Brushing teeth in the wrong time can also cause caries. Brushing teeth properly is also done correctly in the frequency and time that is appropriate such as twice a day, in the morning after eating and before going to bed at night [13]. The correct time to brush your teeth will certainly affect the presence of tooth decay. If the time to brush your teeth is wrong, then tooth decay can occur.

Parents have a very important contribution in preventing plaque buildup and caries in children. Lack of knowledge possessed by parents regarding dental and oral health is a major factor in behavior that does not encourage health [14]. Lack of parental knowledge about dental caries can increase the risk of caries in children. If parents have the right knowledge about dental caries, it can have an impact on children's behavior, especially when maintaining dental and

oral health. If a person's attitude is influenced by his knowledge, the higher the knowledge will form an attitude and manifest good behavior. According to the conditions in the field. The low level of knowledge of mothers forms attitudes and manifests dental and oral health behavior incorrectly. So that it can be connected with the child's behavior in maintaining dental hygiene. The behavior of parents for the use of children's dental health services that are less likely to have a negative impact on the risk of dental caries for children, so it is very necessary for parents' behavior to supervise and teach children in maintaining their children's dental health [15]. If parents have the right attitude towards their dental and oral health. Thus the possibility of the child also having the right attitude especially towards dental and oral health.

Some causes of tooth decay include bacteria that cause tooth decay in the mouth such as *Lactobacillus* and *Streptococcus mutans*. The most common bacteria that cause tooth decay are *Streptococcus mutans*, these bacteria gather around the teeth and gums, then there is *Lactobacillus*, which is a bacteria that affects eating habits. Only considered as a factor that helps the caries process. Then there is the arrangement of teeth that affects the formation of tooth decay or grooves in higher teeth, pits, and fissures, caries develops. Caries occurs in areas where there is generally food so that food scraps or bacteria easily accumulate here.

And fermented carbohydrates Fermentation is a stage of bacteria that convert glucose, fructose, and lactose into acids including lactic acid through glycolysis in the mouth. Acid can have an impact on demineralization of mineral destruction if there is a bond to the teeth. However, remineralization can also occur if acid neutralization, which is influenced by saliva or mouthwash. Toothpaste containing fluoride can support remineralization. The lost mineral content creates cavities or holes. The influence of foods containing sugar (glucose, fructose, and lactose) as the cause of tooth decay. So the frequency level of teeth that contain cariogenic foods can affect the development of tooth decay.

Then there are teeth that contain cariogenic foods will have an impact on the emergence of dental caries. Bacteria will change sugar metabolism when food enters the mouth, then produce acid-products and pH levels can be reduced. The development and reduction of mineralization in the root surface is 2.5 times higher than for caries in enamel.

And there are several factors that affect tooth decay. A number of factors cause tooth decay. Based on observations, the closer humans live with nature, the less likely there will be tooth decay. Food factories are increasingly sophisticated, so the percentage of caries will also be higher for humans who consume factory-made food [12].

The first is heredity From 46 pairs of parents in a large percentage, there are only children in the right dental condition in 1 pair, in a medium percentage with 5 pairs, and the rest in a high caries percentage of 40 pairs. In efforts to prevent caries that are increasingly sophisticated lately, actually hereditary factors for the stages of caries can be minimized. The second is race The influence of race on

dental caries is very rare. But the condition of the jawbone of a race of a nation is likely related to the percentage of caries that is increasing or decreasing. The third is gender. From observations carried out by Milhahn-Turkeheim quoted from Tarigan on the M1 teeth, the results obtained related to the percentage of dental caries were found to be more common in men than in women. Compared to the right molar, the percentage of caries is much higher in the left molar due to chewing and cleaning factors for each component of the teeth.

The fifth is age based on Tarigan's explanation (2021) throughout life, 3 stages of age are known to be observed at the angle of the teeth: Mixed dentition period, for this period molar 1 has the most caries. Puberty period, namely adolescents from the age of 14-20 years. For this stage, hormonal changes occur which can cause swelling of the gums so that oral hygiene is not maintained. This is what causes the increase in the percentage of caries. Age between 40-50 years. For this stage, the gums and papillae decrease so that food residue is difficult to clean [16].

The fifth is food. Based on Tarigan's explanation (2014), food has a big impact on teeth and mouth. This impact can be classified into 2, namely: The composition of food that creates energy includes protein, vitamins, carbohydrates, fats, and minerals. These various elements have an impact on the pre-eruption phase and also after eruption for teeth [12].

1. Mechanical function of the food consumed. Food with a type of cleaning teeth. So, food as a natural tooth polisher, certainly can reduce tooth decay. Foods with this tooth cleaning property include guava, apple, pineapple, chewing gum, and others. On the other hand, foods with soft properties that stick to the teeth can damage teeth including cakes, chocolate, biscuits, and others.

According to Saputera (2021), chewing xylitol gum is a plaque control measure that is easy to do anywhere rather than having to brush your teeth and gargle with mouthwash which can only be done in certain places. Xylitol gum can be chewed anytime and is easy to obtain, such as in supermarkets. Not only that, a number of individuals like xylitol gum because it has several flavors [17].

The sixth is vitamin. Vitamins have an impact on the stages of tooth decay, especially during the period of tooth formation. The seventh is chemical elements. The influence of chemical elements that have an impact on the formation of tooth decay is still under research. Fluorine is one of the chemical elements that greatly affects the percentage of caries.

The eighth is saliva for teeth, especially enamel hardness. The ninth is plaque, which is initially a liquid that eventually becomes a chelate, a place for microorganisms to grow. After finishing eating, plaque should be removed as much as possible, because plaque is the beginning of caries. Brushing your teeth after eating and at night before going to bed can help remove plaque. If you are not used to brushing your teeth, plaque is initially a liquid that eventually becomes a chelate, a place for microorganisms to grow that cause caries.

Some of the effects of tooth decay that show negative effects and can affect the quality of life for children. According to research by Zetu (2013) in Mukhbitin (2018), tooth decay can cause pain and uncomfortable conditions. This can interfere with children's activities at school. There will be a decrease in a child's learning ability, children who have toothache are unable to complete tasks and respond to questions well. Directly or indirectly, it can have an impact on the quality of learning in class [18].

Other effects that arise due to caries are that children can have acute or chronic infections, and can even cause disabilities. Caries can also have an impact on children's eating patterns and sleeping conditions due to the pain they experience. In order to obtain maximum dental and oral health, routine care must be carried out. Dental care needs begin with paying attention to diet, plaque or food residue left behind by cleaning such as brushing teeth, removing teeth that can no longer be maintained, and tartar and fillings for cavities from dentists to be cleaned. When dental caries has occurred in children, the method implemented is by checking teeth at the nearest health facility to get treatment that is appropriate to the problem experienced.

The average age of Indonesian children when entering elementary school is 6 years old and they finish (graduate) at the age of 12 years old. If we look at the classification of the stages of child development, so that school-age children have two phases of development, in the early phase is the middle childhood phase (6-9 years), and then becomes late childhood from the age of 10-12 years [19].

The physical development of elementary school children consists of physical and psychological, physical becomes an area of development of several developments in the individual. In physical there must be cognitive, social, religious, language, and moral development. A person's physical develops at various stages, which begin in childhood, adolescence, adulthood, and old age.

Based on the results of observations conducted by Istiqomah and Suyadi (2019), it was obtained that there were 3 physical differences for Elementary Schools, for example, there were children with larger body growth compared to other children, there were also children with slower body growth where there were smaller bodies compared to other children, and there were several children who had normal heights that were commensurate with their age growth.

This study aims to determine the knowledge of grade VI A students of SDN Wonokromo 1 about dental caries in Wonokromo District, Surabaya City.

## II. METHOD

This research was conducted at SDN Wonokromo 1, Surabaya City, which was implemented from November 2022 to March 2023. This type of research is descriptive research, with the aim of knowing the description of students' knowledge about dental caries in class VI A students of SDN Wonokromo 1, Surabaya City. about dental caries. The targets used for this study were 30 class VI A students of SDN Wonokromo 1, Surabaya City.

Data collection process for questionnaire data The steps taken to collect questionnaire data are, Asking permission from the school to conduct the research. Then visiting class VI A students of SDN Wonokromo 1, Surabaya City. Conveying the purpose of distributing questionnaire sheets to class VI A students of SDN Wonokromo. Conveying directions for filling out the questionnaire sheets starting with completing the respondent's biodata and how to fill in the multiple choice. Distributing questionnaire sheets to class VI A students of SDN Wonokromo 1, Surabaya City Collecting the answered questionnaire sheets.

The data analysis technique used for this study is to obtain the average answer from the respondents. The total answers obtained from the respondents are then presented as a percentage and then classified.

### III. RESULTS

#### A. CHARACTERISTICS OF RESPONDENTS

Based on the data presented in TABLE 1, The results of filling in data and student respondents obtained student respondents were mostly female, amounting to 18 students (60%). The results of filling in data and student respondents amounting to 18 students (60%). However, for the results of filling in data, student respondents were male, amounting to 12 students (40%). TABLE 2 It is known that the average correct answer for Class VI A students regarding the definition and causes of tooth decay is (81%), as in the assessment criteria, the percentage includes a good classification. TABLE 3 obtained regarding the knowledge of Class VI A students about the effects of tooth decay, the average correct answer was (88%), as in the assessment criteria, the percentage includes good classification

TABLE 1

Frequency Distribution of Respondent Characteristics of Class VI A Students of SDN Wonokromo 1 Surabaya in 2024

Gender	Amount	Percentage (%)
Man	12	40%
Woman	18	60%
Amount	30	100

TABLE 2

Distribution of Knowledge Answers About the Definition and Causes of Dental Caries in Class VI A Students at SDN Wonokromo 1 Surabaya

Statement	Correct		Wrong		Assessment criteria
	n	%	n	%	
Definition of dental caries	20	67	10	33	Good : 76% - 100%
Signs of tooth decay	28	93	2	7	Medium : 56% - 75%
Causes of cavities	28	93	11	37	Not enough : <56%
The impact of frequently consuming sweet and sticky foods	19	63	11	37	
Foods that cause tooth decay	24	80	6	20	

Causes of cavities other than consuming sweet and sticky foods	27	90	3	10	
Amount	145	483	35	117	Good
Average	24	81	6	20	

TABLE 3

Distribution of Answers to Knowledge About the Consequences of Dental Caries in Grade VI A Students at SDN Wonokromo 1 Surabaya

Statement	Correct		Wrong		Assessment criteria
	n	%	n	%	
What is felt when experiencing caries	27	90	3	10	Good : 76% - 100%
Condition of a cavity that starts to hurt	29	97	1	3	Currently : 56% - 75%
Due to left cavities	25	83	5	17	Not enough : <56%
Condition of cavities that are not treated	23	77	7	23	
Amount	132	440	18	60	Good
Average	26	88	4	12	

TABLE 4

Distribution of Knowledge Answers on How to Prevent Dental Caries in Grade VI A Students at SDN Wonokromo 1 Surabaya in 2024

Statement	Correct		Wrong		Assessment criteria
	n	%	n	%	
How to prevent cavities	28	93	2	7	Good : 76% - 100%
The type of toothpaste that is good to use	30	100	0	0	Currently : 56% - 75%
Frequency of brushing teeth	25	83	5	17	Not enough : <56%
Reasons to brush your teeth twice a day	29	97	1	3	
The right time to brush your teeth	18	60	12	40	
Another way to prevent cavities besides brushing your teeth	25	83	5	7	
Amount	155	516	14	74	Good
Average	26	86	2.3	12.3	

TABLE 5

Recapitulation of Knowledge About Dental Caries in Grade VI A Students of SDN Wonokromo I Surabaya in 2024

Statement	Correct		Wrong		Assessment criteria
	n	%	n	%	
Cavity treatment	21	70	9	30	Good : 76% - 100%
The right time for tooth filling	23	77	7	23	Medium : 56% - 75%
Dental check-up period	20	67	10	33	Not enough : <56%

Amount	155	214	26	86	Currently
Average	26	71	9	29	

Based on TABLE 4 obtained regarding the Knowledge of Class VI A Students About How to Prevent Dental Caries, getting an average of (86%) correct answers, as in the assessment criteria, the percentage includes a good classification. Distribution of Answers on Knowledge About Dental Caries Treatment in Class VI A Students at SDN Wonokromo 1 Surabaya in 2024.

Based on TABLE 5 obtained regarding the Knowledge of Class VI A Students Regarding Dental Caries Treatment, there was an average of (71.3%) correct answers, as in the assessment criteria, the percentage is included in the moderate classification

**TABLE 6**  
**Recapitulation of Knowledge About Dental Caries in Grade VI A Students of SDN Wonokromo I Surabaya in 2023**

Statement	%	Assessment criteria
Grade VI A Students' Knowledge About the Definition and Causes of Dental Caries	81	Good : 76% - 100% Medium : 56% - 75% Not enough : <56%
Grade VI A Students' Knowledge About the Consequences of Dental Caries	88	
Grade VI A Students' Knowledge About How to Prevent Tooth Decay	86	
Grade VI A Students' Knowledge About Dental Caries Treatment	71	
Amount	326	Good
Average	82	

Based on TABLE 6 The data obtained from collecting questionnaire sheets with 30 respondents for class VI A students of SDN Wonokromo I Surabaya in 2024 can be obtained regarding the average knowledge regarding students' dental caries, there is a percentage of 82%, in line with the assessment criteria, the percentage includes a good classification.

Based on the results of the study, it was found that class A students of SDN Wonokromo 1 Surabaya about the understanding and causes of dental caries were classified as good. This can be seen from above half of the total respondents being able to answer correctly regarding the understanding and causes of dental caries including indicators of understanding dental caries, early signs of cavities, foods that cause cavities, and things that can have an impact on cavities other than consuming sweet and sticky foods.

The average value of respondents was obtained the least for the indicator of the cause of cavities. The cause of the indicator is that students know about the types of food that can

cause cavities, but students are less aware of the food residue that is difficult to clean on the surface of the teeth due to cariogenic food in a sticky consistency and becomes a carbohydrate that is easily fermented by bacteria which can then have an impact on enamel demineralization and cause caries [20].

According to [16] consuming food that causes cavities frequently can have an impact on cavities. In essence, staple food sources for tooth decay such as cakes, chocolate, candy, and muffins, which are also available in school cafeterias and at home that can be reached by children [16]. The results of the Napitupulu study found 48 respondents, 31 others (64.6%) had caries. This is because microbes accumulate in the mouth, because the mouth is usually a breeding ground for bacteria. Such as, foods with high carbohydrates and a range of dental complications [16].

Based on the results of the study, the results of the knowledge of class VI A students related to the understanding and causes of dental caries are classified as good, but class VI A students still have a high level of caries. This is due to the lack of maintaining dental hygiene. Improper tooth cleaning can have an impact on plaque buildup. Plaque as a soft deposit consists of the accumulation of several types of bacteria that adhere to the surface of the teeth. If someone is lazy to brush their teeth, the accumulation of plaque will stick to the surface of the teeth. Plaque is also one of the causes of caries (tooth holes) and periodontal disease. Brushing your teeth regularly is a way that can be implemented to prevent and control the formation of dental plaque [21].

Based on the results of the study, it was found that grade VI A students of SDN Wonokromo 1 Surabaya had a good level of knowledge about the effects of dental caries. This can be seen above in half of the total respondents who were able to answer correctly regarding the effects of dental caries including indicators of symptoms felt when experiencing caries, the condition of cavities that began to hurt, the effects of cavities that were left untreated, the effects of pain caused by dental caries, and the condition of teeth that were not treated immediately.

Caries shows a negative influence and can affect the quality of life for children. According to Zetu's research (2013) in Mukhbitin (2018), caries can cause pain and uncomfortable conditions. This can interfere with children's activities at school. There will be a decrease in a child's learning ability, children who have toothache are unable to complete assignments and respond to questions well. Directly or indirectly, it can have an impact on the quality of learning in class.

Other effects that arise due to caries are that children can have acute or chronic infections, which can lead to disability. Caries can also have an impact on the quality of children's sleep and eating patterns due to the nature of the pain that is present. This condition can affect the child's nutrition, growth and weight gain [18].

According to [16] most people do not know about brushing their teeth being very important. Not only that, most of them do not know the right time to brush their teeth. Thus, bad behavior patterns in children when brushing their teeth can have an impact on cavities for children. The right routine in brushing teeth after dinner or before bed. It will be a long-term attitude when brushing children's teeth at night by knowing the routine of brushing teeth before bed. The tendency of children at night who do not brush their teeth can have an impact on decay, and vice versa, it is better to clean children's teeth at night to help prevent tooth decay. Food waste that accumulates on the teeth, especially carbohydrates, turns into a food hotspot for small microorganisms in tooth decay.

Based on the results of the study, the results of the knowledge of class VI A students about the effects of dental caries were classified as good, but the students still had a high level of caries. This is influenced by behavior towards awareness of dental and oral health which is still low. According to [22], behavior that is less than awareness of dental and oral health can cause an increase in the prevalence of dental caries. This has an impact on increasing the need for treatment [22].

Based on the results of the study, it was found that grade VI A students of SDN Wonokromo 1 Surabaya had a moderate level of knowledge about dental caries treatment. This can be observed in half of the respondents who were able to respond correctly regarding the treatment of cavities, the right time for filling teeth, and the duration of dental check-ups.

#### IV. CONCLUSION

Based on the results of the study on the knowledge of class VI A students of SDN Wonokromo 1 Surabaya about dental caries, it can be concluded that students' knowledge about the definition and causes of dental caries, in class VI A students of SDN Wonokromo 1 Surabaya is in the good category. Students' knowledge about the effects of dental caries in class VI A students of SDN Wonokromo 1 Surabaya is in the good category. Measuring students' knowledge about how to prevent dental caries in class VI A students of SDN Wonokromo 1 Surabaya is in the good category. Measuring student's knowledge about dental caries treatment in class VI A students of SDN Wonokromo 1 Surabaya is in the moderate category.

#### REFERENCES

- [1] S. E. Wati, "Gambaran Pengetahuan Siswa Tentang Karies Gigi Pada Siswa Sekolah Dasar Di SDN Mojoroto 2 Kota Kediri," *J. Nusantara Med.*, vol. 4, pp. 54–62, 2020.
- [2] M. F. Ryzanur, Widodo, and R. Adhani, "Hubungan Antara Pengetahuan Kesehatan Gigi Dengan Nilai Indeks DMF-T Siswa Sekolah Menengah pertama," *J. Kedokt. Gigi*, vol. VI, no. 1, pp. 35–53, 2021, doi: 10.1002/9781119669616.ch3.
- [3] Riskesdas Jatim, *Laporan Provinsi Jawa Timur RISKESDAS 2018*. 2018.
- [4] S. Fitriyah, Roifatun Nisa, "Hubungan Pengetahuan, Sikap dan Tindakan Tentang Kebersihan Gigi Terhadap Karies Gigi pada Anak di SD Negeri 2 Mundu Kabupaten Indramayu," *J. Med. Utama*, vol. 02, no. 02, pp. 456–468, 2021.
- [5] B. D. Hardika, "Hubungan Pengetahuan dan Sikap Anak Kelas V Terhadap Terjadinya Karies Gigi di SD Negeri 131 Palembang," *JPP (Jurnal Kesehat. Poltekkes Palembang)*, vol. 13, no. 1, pp. 37–41, 2018, doi: 10.36086/jpp.v13i1.84.
- [6] Z. Rehena, "Hubungan Jenis dan Frekuensi Konsumsi Makanan Kariogenik dengan Kejadian Karies Gigi pada Anak SD Negeri 5 Waai Kabupaten Maluku Tengah Zasendy," *J. Kesehat. UKIM*, vol. 1, no. April, pp. 90–96, 2020.
- [7] H. Nugraheni, S. Sadimin, and S. Sukini, "Determinan Perilaku Pencegahan Karies Gigi Siswa Sekolah Dasar Di Kota Semarang," *J. Kesehat. Gigi*, vol. 6, no. 1, p. 26, 2019, doi: 10.31983/jkg.v6i1.4404.
- [8] S. Nur Hasanah, T. Ta'adi, and F. Khasanah, "Hubungan antara tingkat pengetahuan karies gigi dengan indeks DMF-T pada siswa kelas V SD Negeri Walitelon Utara Temanggung," *J. Oral Heal. Care*, vol. 7, no. 1, pp. 40–45, 2019, doi: 10.29238/ohc.v7i1.344.
- [9] Sukarsih, A. Silfia, and Muliadi, "Perilaku dan Keterampilan Menyikat Gigi terhadap Timbulnya Karies Gigi pada Anak di Kota Jambi," *J. Kesehat. Gigi*, vol. 6, no. 2, pp. 14–18, 2019.
- [10] R. A. Nadialista Kurniawan, "Status Karies Menggunakan Indeks DMF-T Pada Anak Usia 12-15 Tahun Di Desa Sioban Kec. Sipora Selatan, Kab. Kep. Mentawai," *Ind. High. Educ.*, vol. 3, no. 1, pp. 1689–1699, 2021.
- [11] S. Notoatmodjo, *Ilmu Perilaku Kesehatan*. Jakarta: Rineka Cipta, 2020.
- [12] A. S. B. Tarigan, "Gambaran Pengetahuan Tentang Makanan Kariogenik Terhadap Terjadinya Karies Gigi Pada Anak Sekolah Dasar," 2021.
- [13] R. Reza, *Hubungan Jenis Makanan Jajanan Dengan Status Karies Pada Murid Sdn Lampeuneurut Aceh Besar*, vol. 4, no. 2. 2018. doi: 10.29103/averrous.v4i2.1036.
- [14] S. Notoadmojo, *Metodologi Penelitian Kesehatan*, vol. 1, no. 1. Jakarta: RINEKA CIPTA, 2018.
- [15] R. Ulfah and N. K. Utami, "Hubungan Pengetahuan dan Perilaku Orangtua dalam Memelihara Kesehatan Gigi dengan Karies Gigi pada Anak Taman Kanak Kanak," *J. Kesehat. Masy.*, vol. 7, no. 2, pp. 146–150, 2020.
- [16] D. F. G. D. Napitupulu, "Hubungan Kebiasaan Menyikat Gigi Dengan Karies Gigi Pada Anak Usia Sekolah," *J. Keperawatan Prior.*, vol. 6, no. 1, pp. 103–110, 2023, doi: 10.34012/jukep.v6i1.2948.
- [17] A. Supriatna and J. Angki, "pengaruh kebersihan gigi dan mulut terhadap terjadinya karies paada murid sd umur 6-12 tahun sdn rappocini tahun 2017," *Diponegoro J. Account.*, vol. 2, no. 1, pp. 2–6, 2017.
- [18] I. S. M. M. Azmi, F. Ariffin, and H. B. Mukhali, "Inflammation of the Gums," *Malaysian Fam. Physician*, vol. 15, no. 1, pp. 71–73, 2020.
- [19] A. Sulistianingsih and D. I. Hasyim, "Pengaruh Edukasi Persalinan Via Whatsapp Group Terhadap Pengetahuan Ibu Hamil Menghadapi Persalinan Di Kabupaten Pringsewu," *J. ilmiah Kesehat.*, vol. 10, no. 2, pp. 85–94, 2021.
- [20] S. Waty and Y. Mutiara, "Pengaruh makanan kariogenik terhadap kejadian karies gigi pada anak sekolah dasar," *J. Bioleuser*, vol. 5, no. 2, pp. 5–11, 2021.
- [21] F. Windiyana, R. Adhani, and A. Azizah, "Efektivitas Penyuluhan Menggunakan Lagu 'GIGI SEHAT' Terhadap Penurunan Plak Di Barito Kuala," *J. Kedokt. Gigi*, vol. 4, no. 1, April 2020, pp. 21–26, 2020.
- [22] T. Ermawati, "Peningkatan Kesehatan Gigi dan Mulut dengan Pendekatan Art Therapy pada Siswa Taman Kanak-Kanak di Jember," *War. Pengabd.*, vol. 17, no. 1, p. 1, 2023, doi: 10.19184/wrtp.v17i1.29205.

