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## *Dental Health Behavior and The Incidence of Dental Caries in Children*

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**Abstract:** One of the most common children's dental health problems is dental caries. Childhood is the beginning of behavior formation, therefore it is hoped that parents can educate their children to behave correctly in maintaining healthy teeth and mouth. This research used descriptive survey research methods. The design of this research is cross sectional. The research was conducted at MIS Cempaka Putih and MIS Sungai Baru, South Kalimantan. The population in this study was all students in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru, there are 41 people. The sampling technique in this research used the total sampling method. The variables in this study are children's dental health behavior and the DMF-T index. The data that has been collected will be processed through editing, coding, tabulation and descriptive data analysis. This research was conducted at MIS Cempaka Putih and MIS Sungai Baru Banjarmasin in February 2022. Respondents were 10-12 years old. The dental health behavior of children in the good category was 14 people (34.15%), 15 people (36.58%), and 12 people less (29.27%). DMF-T index in the very high category was 3 people (7.32%), high was 4 people (9.76%), medium was 18 people (43.90%), low was 13 people (31.70%), and very low 3 people (7.32%). Based on the research results, it can be concluded that the dental health behavior of children in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru is mostly adequate for 15 people (36.58%). The class 4-6 DMF-T index in MIS Cempaka Putih and Sungai Baru has an average value of 3.5, including the medium category.

**Keywords:** toothbrush, childhood caries, plaque index, DMF-T, behavior management

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### INTRODUCTION

The dental and oral health of children in Indonesia is very worrying and requires serious awareness and attention ([Keloay P, C Mintjelungan, 2019](#)). One of the most common dental health problems in children throughout the world is dental caries. Caries is a disease of the hard tooth tissue, namely enamel, dentin and cementum, which is caused by the activity of microorganisms in fermentable carbohydrates. Caries is characterized by demineralization of hard tooth tissue which is then followed by destruction of the organic material. The severity of caries in children can be seen from the DMF-T index. The DMF-T index describes the amount of caries a person suffers ([Amri UH, 2016](#)). If dental caries is not treated immediately, it will have an impact on the health of the oral cavity and health problems throughout the body. Children who experience dental and mouth problems if not treated immediately can have fatal consequences and have a bad impact on the child. Children who experience dental and mouth problems will have difficulty chewing food, resulting in reduced nutritional intake. Insufficient nutritional intake causes weight loss, which interferes with children's growth and development ([Suratri M, Sintawati, 2016](#)).

RISKESDAS showed that the prevalence of dental and oral problems in South Kalimantan Province

has increased from 36.10% in 2013 to 59.60% in 2018 and at the age of 10-14 years it was 59.56% ([Kemenkes RI, 2018](#)). Dental and oral problems are often suffered by children under the age of 12, amounting to 89% and the most common dental and oral problem is caries ([Safitri, 2015](#)). This disease is caused by poor oral and dental hygiene resulting in plaque forming on the surface of the teeth. Plaque is usually found in many school-aged children due to behavioral patterns and habits that do not pay attention to maintaining the cleanliness of their teeth and mouth ([Fatimatuzzahro N, Prasetya T, 2016](#)).

The school age group is the basis for instilling and familiarizing children with maintaining healthy teeth and mouths. Instilling dental and oral health behavior can start at school age and start from the family environment. Childhood is the beginning of behavior formation, therefore it is hoped that parents can educate their children to behave correctly in maintaining healthy teeth and mouth ([Rizalady, 2017](#)). H. L. Bloom in his theory revealed that there are 4 factors that influence the health of a person or community, namely environment, behavior, heredity, and health services. Parental behavior in maintaining oral hygiene can be done by adjusting diet, checking teeth regularly every 6 months and cleaning children's teeth properly (method, duration, frequency and timing) ([Sutomo, 2017](#)).

Elementary school age children (7-9 years) who already have permanent teeth are not accustomed to brushing their teeth properly and correctly. The condition of children's dental and oral hygiene is worse than adults because children eat and drink more which causes cavities. Beside that, the level of awareness in maintaining children's own dental and oral health is still relatively low. School-aged children, especially elementary school, are the age who are less concerned about the health and cleanliness of their teeth and mouth, such as rarely brushing their teeth or not brushing their teeth at the right time. Elementary school age children have the habit of consuming foods that contain carbohydrates, such as sugar (candy, chocolate, cookies) which easily stick to the surface of their teeth ([Fatimatuzzahro N, Prasetya T, 2016](#)). Facts show that many individuals brush their teeth every day, but only a few brush their teeth properly. This is supported by [RISKESDAS data \(2018\)](#) which states that the prevalence of correct tooth brushing in Indonesia is only 2.80%, in South Kalimantan Province it is 4.97% ([Kemenkes RI, 2018](#)). Based on the description above, it is found that correct tooth brushing behavior in Indonesia is very low, only 2.80%. This will affect the hygiene status of a person's teeth and mouth. Therefore, researchers are encouraged to conduct research on the description of tooth brushing behavior and the incidence of dental caries in children.

## METHODS

This research used quantitative research with descriptive survey research methods. The design of this research is cross sectional. The observations are carried out only once at a time. The research was conducted at MIS Cempaka Putih and MIS Sungai Baru, South Kalimantan. The time for this research was carried out in February 2022. The population in this research was all students in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru. The number of students in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru is 41 people. The sampling technique in this research used the total sampling method. The procedures for the research are research preparation and implementation of research. Research preparation by request permission from the Head of the Gadang Hanyar Community Health Center and other parties MIS Cempaka Putih and MIS Sungai Baru schools for research, collect respondent data, and prepare research instruments. Implementation of research by provide informed consent to students in grades 4-6, provide questionnaires to respondents regarding behavior dental health. Then the respondent underwent a DMF-T examination. Questionnaires and results of respondents' DMF-T examinations were collected and completeness is checked and then data processing and analysis is carried out.

The variables in this study were children's dental health behavior and the DMF-T index. Data collection was carried out directly on students in grades 4-6. Research data is in the form of primary data, namely data obtained through questionnaires and data from direct examination of research subjects. The questionnaire contains 10 questions about maintaining oral health. The questionnaire used has been tested for validity and reliability. DMF-T index data were taken by students accompanied by dentist from public health center. The tools and materials used to determine the DMF-

T index are hand scoon, disposable diagnostic sets, and head flashlights. The DMF-T index can be known through direct examination in the oral cavity and filling in the odontogram by researcher. The DMF-T index has 5 levels namely very low (0.0-1.1), low (1.2-2.6), Medium (2.7-4.4), Height (4.5-6.5), and Very high ( $\geq 6.6$ ). The data that has been collected will be processed through editing, coding, tabulation and descriptive data analysis.

## RESULTS

This research was conducted at MIS Cempaka Putih and MIS Sungai Baru Banjarmasin in February 2022. The respondents for this research were students in grades 4-6 using a total sampling technique so there were 41 respondents.

**Table 1. Characteristics of respondents**

Characteristics	Total	Percentage (%)
<b>Gender</b>		
Male	18	43.9
Female	23	56.1
<b>Class</b>		
4th grade	17	41.6
5th grade	12	29.2
6th grade	12	29.2
<b>Age (year)</b>		
10	14	34.1
11	12	29.3
12	15	36.6

Based on [table 1](#). Most of the characteristics of respondents are female, namely 23 respondents (56.1%). They are in class 4, namely 17 respondents (41.6%). Most of the respondents are 12 years old, namely 15 respondents (36.6%). Results of research regarding frequency distribution based on behavior in MIS Cempaka Putih and MIS Sungai Baru:

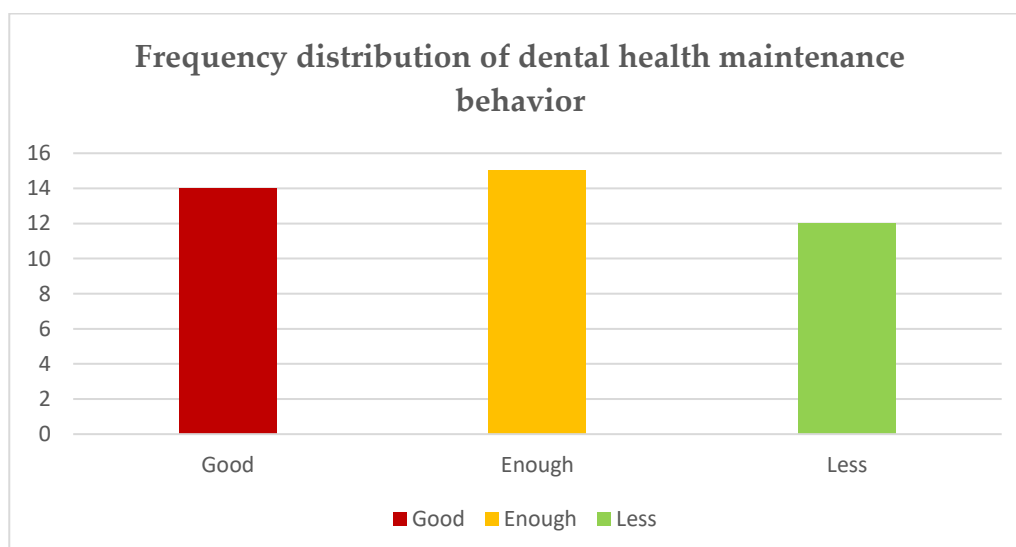


Figure 1. Frequency distribution of dental health maintenance behavior for children in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru.

From the [Figure 1](#), it states that 14 children with good dental health behavior (34.15%), 15 (36.58%), and 12 less (29.27%) have good dental health behavior. Most children behave adequately in maintaining

healthy teeth and mouth. Results of research regarding the frequency distribution of the DMFT index in MIS Cempaka Putih and Sungai Baru:

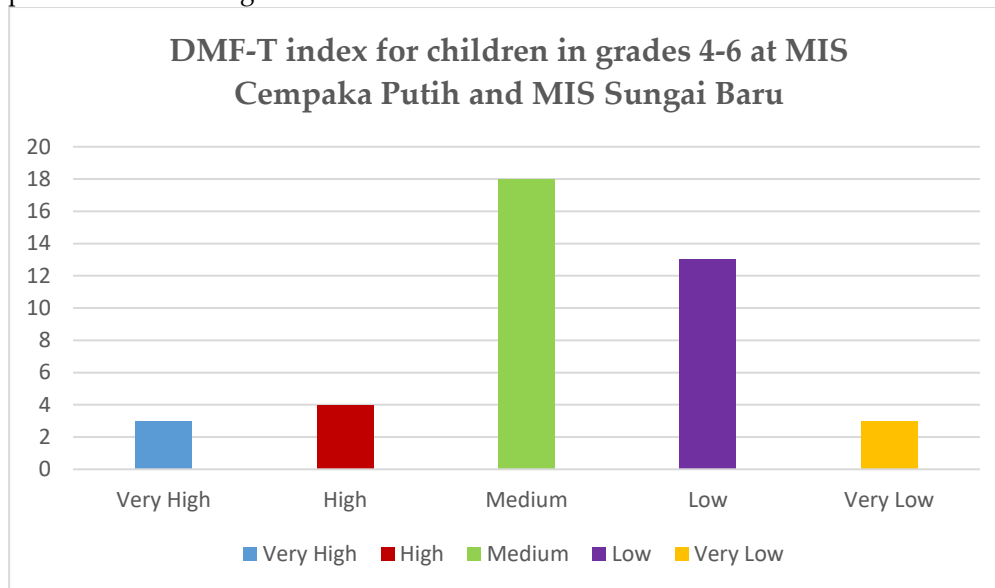


Figure 2. DMF-T index for children in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru

From the [figure 2](#), it states that the DMF-T index in the very high category is 3 people (7.32%), high is 4 people (9.76%), medium is 18 people (43.90%), low is 13 people (31.70%), and very low 3 people (7.32%). Most have a DMF-T index in the medium category.

## DISCUSSION

This research is about the description children's dental health behavior and the DMF-T index in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru located in Banjarmasin, totaling 41 children. The DMF-T index describes the amount of caries a person suffers from. The DMF-T caries assessment is calculated per tooth, meaning that if one tooth has more than one caries, for example there is proximal and buccal caries, then the caries is still counted as ones ([Manbait, 2019](#)). The results showed that of the 41 students selected as respondents, it was found that there were 3 students who had a very low DMF-T index, 13 students with a low DMF-T index, 18 students with a medium DMF-T index, 4 students with a high DMF-T index, and 3 students with very high DMF-T index. A high DMF-T index is a bad condition, because this indicates that there are many teeth with caries ([Amri, 2016](#)).

The high DMF-T index experienced by students can be caused by several factors, one of which is based on research [Liena \(2020\)](#) stated that there is a relationship between consumption of cariogenic foods by children and a high prevalence of caries. Examples of types of cariogenic foods that are often found in children are sweet foods such as candy and chocolate, sweet drinks that contain flavorings such as soda and packaged drinks. If this habit is continued, it will have a bad impact on general health and is also dangerous for oral health because cariogenic foods contain a lot of sugar and low pH levels. Cariogenic foods tend to stick to the surface of the teeth. If food debris is not cleaned properly, it can increase the activity of bacteria that convert sugar into acid, leading to the formation of plaque which can damage tooth structure and lead to caries in children ([Liena, 2020](#)). Another factor that can influence a high DMF-T index is the mother's knowledge in teaching and caring for children to maintain dental health. A mother has a role in providing knowledge and teaching children things related to how to care for their oral cavity. Based on this role, a mother must have basic knowledge about oral health. The mother's high level of knowledge about health behavior can increase the ability to monitor and guide children to care for their oral cavity. This is in accordance with research Sari which states that the higher a mother's knowledge, the lower her child's caries index ([Sari, 2021](#)).

Insufficient and adequate dental health behavior is still found in children in grades 4-6. Children's dental health behavior is caused by children's own behavior in terms of brushing their teeth, consuming sweet foods and children's lack of toothpaste. The formation of behavior patterns also requires a person's role likewise with children's behavior. Healthy behavior is influenced by motivating factors: family, parents, friends and health workers have an important role in children's behavior. Mothers are the most important factor in children's healthy behavior. Mother's behavior regarding dental and oral health starts from the mother's behavior which sets an example in maintaining healthy teeth and mouth. The lack of parents' ability to check their children's teeth regularly means that it is not well controlled by health workers (Liza, 2020). Parental knowledge about dental and oral health is also a factor that influences the incidence of caries in children. Knowledge is the basis for forming a person's actions. The knowledge possessed can enable a person to know and understand the consequences and consequences of the actions taken. Knowledge can be influenced by a person's level of education, intelligence, attention and interest. The higher a person's level of education, the more knowledge they will have (Hidayah, 2021). The level of education influences a person's actions and attitudes, the higher the level of education, the easier it is to understand information. The better a person understands the information, the more influence it will have on forming new behaviors that can be implemented, such as dental and oral health maintenance behavior (Cahyaningrum, 2017). Beside education level, parents' oral health knowledge can also influence children's oral health maintenance behavior. If parents' knowledge and understanding of dental health is less supportive, then the dental and oral health maintenance behavior given to children will also not be optimal (Hidayah, 2021).

The peer environment is one of the environments that is an important component in shaping children's behavior and is an indirect variable for children's dental and oral health through the formation of children's behavior. This is in accordance with the opinion that peer groups are an important socialization institution besides the family, because peer groups also participate in teaching people how to live in society. At MIS Cempaka Putih and MIS Sungai Baru, the dental health behavior of children in the good category was 14 people (34.15%) and 15 people (36.58%) were fair. This shows that the majority of respondents have a school environment that supports dental health behavior such as UKGS activities, routine dental checks, and the role of health workers. This activity can support children's behavior to improve children's dental and oral health status. Correct behavior regarding how to brush teeth and frequency of teething is also obtained from peers which is an external factor. External factors are a group, for example peer support regarding dental and oral health. The individual's relationship with the social environment will influence the formation of behavior (Liza, 2020).

## CONCLUSION

Based on the research results, it can be concluded that the dental health behavior of children in grades 4-6 at MIS Cempaka Putih and MIS Sungai Baru is mostly adequate. The DMF-T index in MIS Cempaka Putih and Sungai Baru has a medium category. Health promotion efforts need to be made to improve children's dental health behavior.

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