



## Determinants of Dental and Oral Hygiene in School-Aged Children

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### A B S T R A C T

Dental disease is an essential concern due to the vulnerability of the school-age group to dental and oral health problems. This study analyzes the correlation between knowledge and attitude toward oral and dental hygiene, tooth brushing behavior, and parental roles with dental and oral hygiene in school-aged children (10-12 years). This research method was descriptive-analytic with a cross-sectional design. The population in this study were students in grades 4, 5, and 6 at SDN 30 Mataram, totaling 120 people. There were 50 respondents with a simple random sampling. Instruments to assess knowledge, attitude, and parental roles were a questionnaire. In addition, Oral Hygiene Index-Simplified (OHI-S) to measure dental and oral hygiene, and an observation sheet to evaluate brushing teeth practice. The data analysis technique used Chi-Square to determine oral and dental health determinants in school-age children. There was a significant correlation between knowledge and attitude toward dental and oral health, tooth brushing behavior, and parental roles with dental and oral hygiene in school-aged children with significant values sequentially,  $p=0.006$ ,  $p=0.000$ ,  $p=0.000$ ,  $p=0.000$ . In conclusion, The determinant of dental and oral hygiene in school-aged children are knowledge and attitude toward oral and dental health, teeth brushing practice, and parental roles.

## INTRODUCTION

Damage to teeth can affect the health of other limbs. It will interfere with daily activities because teeth are an integral part of our body (Rahman, Ilmi, and Anam, 2018). One of the factors that can damage teeth is food and beverages. Some are healthy for teeth, and some can harm teeth (Pratiwi, 2007). Environment, knowledge, education, public awareness, and dental health management, including prevention and treatment, must be considered in dental health efforts. However, most people ignore dental health. They think dental care is unimportant, even though its benefits are vital in supporting health and body image (Pratiwi, 2007). The mouth's function is not just an entrance for food and drink. The mouth is an essential part of our body. It mirrors dental health because many diseases have symptoms in the mouth. In addition, dental health is vital to ensure good nutritional status. Moreover, its role is critical in the speaking process and attractive body image. Thus, the teeth' functions are to chew food to facilitate the digestive process, talk well, and support body image (Nainggolan, 2019).

Most children like to consume cariogenic foods because they taste sweet. Therefore, school age is at high risk of experiencing dental caries (Kusuma and Taiyeb, 2020). The incidence of dental caries in Indonesia was 88.8%, with 56.6% root caries, and above 70% had dental caries in all age groups. Specifically, its incidence in children aged 5-9 was 92.6% (Kementerian Kesehatan RI, 2020). In addition, the national prevalence of dental and oral problems was 57.6%. Indonesian people with dental caries were 45.3% in

all age groups, 54.0% in 5-9 years old children group, and 1.89% in aged 10-12 years (Kementerian Kesehatan RI, 2018).

Various factors influence dental and oral hygiene. One of them is the lack of knowledge of dental and oral hygiene. Knowledge is a strong domain for the formation of one's behavior. In addition, a lack of knowledge can significantly result in poor dental and oral hygiene. Knowledge stimulates attitude and practice, then forms behavior (Silaban, 2013). Factors affecting knowledge include the level of education and socio-economic. Low education can lead to a lack of understanding about maintaining dental and oral health (Rama, Suwargiani, and Susilawati, 2017).

In general, there is a lack of knowledge, attitudes, and practice regarding preventing dental and oral diseases in Elementary school students. A preliminary study at SDN 30 Mataram (Mataram 30 Public Elementary School) on all students in grades 1 to 6 showed that most respondents in grades 4, 5, and 6 had poor dental and oral hygiene (66.67%), and only 33.33% had good. Most respondents did not brush their teeth before bed and consumed chocolate, candy, and other sweet foods. This study analyzes the correlation between knowledge and attitude toward oral and dental hygiene, tooth brushing behavior, and parental roles with dental and oral hygiene in school-aged children (10-12 years).

## METHOD

This research method was descriptive-analytic with a cross-sectional design. The population in this study were students in grades 4, 5, and 6 at SDN 30 Mataram, totaling 120 people. There were 50 respondents with a simple random sampling. Instruments to assess knowledge, attitude, and parental roles were a questionnaire. In addition, Oral Hygiene Index-Simplified (OHI-S) to measure dental and oral hygiene, and an observation sheet to evaluate brushing teeth practice. The data analysis technique used Chi-Square to determine oral and dental health determinants in school-age children. The research ethics used are informed consent signed by the child and parents, anonymity (no name), and confidentiality. The ethics clearance was conducted at STIKES YARSI Mataram with certificate number SK: 037/STIKES/Y.III/LPPM/I-G/III/2020.

## RESULT

Almost half of the respondents had moderate dental and oral hygiene knowledge (48%) and moderate dental and oral hygiene (40%). 18% of respondents with good knowledge had good dental and oral hygiene. The Chi-square test obtained  $p=0.006$ . Thus, there was a significant correlation between dental and oral hygiene knowledge with dental and oral hygiene in school-aged children (Table 1).

Table 1. The Correlation between Knowledge and Dental and Oral Hygiene in School-Aged Children

Knowledge	Dental and Oral Hygiene						Total	Chi-Square test
	Good		Moderate		Poor			
	n	%	n	%	n	%		
Good	9	18	5	10	0	0	14	28
Moderate	7	14	7	14	10	20	24	48
Less	2	4	8	16	2	4	12	24
Total	18	36	20	40	12	24	50	100

Half respondents had a neutral attitude toward dental and oral hygiene, and almost half (40%) had moderate dental and oral hygiene. 16% of respondents with a positive attitude had good dental and oral hygiene. The Chi-square test obtained  $p=0.000$ . Thus, there was a significant correlation between attitude toward dental and oral health with dental and oral health behavior in school-aged children (Table 2).

Table 2. The Correlation between Attitude and Dental and Oral Hygiene in School-Aged Children

Attitude	Dental and Oral Hygiene						n	%	Chi-Square test
	Good		Moderate		Poor				
	n	%	n	%	n	%			
Positive	8	16	5	10	0	0	13	26	
Neutral	8	16	7	14	10	20	25	50	
Negative	2	4	8	16	2	4	12	24	
Total	18	36	20	40	12	24	50	100	

Almost half of the respondents had moderate brushing behavior (44%) and moderate dental and oral hygiene (40%). 22% of respondents with good brushing behavior had good dental and oral hygiene. In addition, 22% of respondents with moderate brushing behavior had moderate dental and oral hygiene. The Chi-square test obtained  $p=0.000$ . Thus, there was a significant correlation between tooth brushing behavior with dental and oral hygiene in school-aged children (Table 3).

Table 3. The Correlation between Tooth Brushing Behavior and Dental and Oral Hygiene in School-Aged Children

Tooth Brushing Behavior	Dental and Oral Hygiene						n	%	Chi-Square test
	Good		Moderate		Poor				
	n	%	n	%	n	%			
Good	11	22	1	2	0	0	12	24	
Moderate	6	12	11	22	5	10	22	44	
Poor	1	2	8	16	7	14	16	32	
Total	18	36	20	40	12	24	50	100	

Almost half of the respondents had good parental roles (40%) and moderate dental and oral hygiene (40%). 30% of respondents with good parental roles had good dental and oral hygiene. The Chi-square test obtained  $p=0.000$ . Thus, there was a significant correlation between parental roles and dental and oral hygiene in school-aged children (Table 4).

**Table 4. The Correlation between Parental Roles and Dental and Oral Hygiene in School-Aged Children**

Parental Roles	Dental and Oral Hygiene						n	%	Chi-Square test
	Good		Moderate		Poor				
	n	%	n	%	n	%			
Good	15	30	5	10	0	0	20	40	<i>p</i> =0.000
Moderate	1	2	6	12	5	10	12	24	
Poor	2	4	9	18	7	14	18	36	
Total	18	36	20	40	12	24	50	100	

## DISCUSSION

Knowledge results from curiosity through sensory processes, especially in the eyes and ears of particular objects (Donsu, 2017). It is fundamental for forming behavior in individuals (Silaban, 2013). This paper showed that dental and oral health knowledge correlated with dental and oral hygiene in school-aged children. Respondents with good knowledge could maintain good dental hygiene to avoid dental disease. Conversely, respondents with less knowledge about oral and dental hygiene could not keep their teeth hygienic, causing dental diseases such as loose teeth, cavities, and toothaches. It is in line with a previous study. A study found a relationship between knowledge about dental and oral health and dental and oral care behavior in school-age children (Yusmanijar and Abdulhaq, 2019).

Most respondents in this study had good and moderate knowledge. It illustrates that knowledge about dental and oral health is a simple thing that primary school children understand. However, a few respondents with good knowledge had moderate dental and oral hygiene or could not fully carry out dental hygiene care. Besides knowledge, external factors can influence behavior. The factors include parental roles in supporting children's dental and oral hygiene. In addition, previous research found that the other factor was family support as the motivation from outside a person (external) (Rahmaniar and Prasetyowati, 2022). Preschool children still depend on their parents so parental motivation can affect dental and oral hygiene during that period.

Furthermore, our study indicated a significant correlation between schoolers' attitudes toward dental and oral health with dental and oral hygiene. It is because attitude is one of the factors that can affect the cleanliness of a person's teeth and mouth. However, attitude is not the only determinant for forming behavior. A few elementary school students in this research with good knowledge and attitudes toward dental and oral health had poor dental and oral health behavior. There is no guarantee that attitudes will be displayed in behavior. A prior investigation also found that even though students had good knowledge of dental and oral health, they did not maintain dental and oral health well (Sirat, 2015).

A few respondents with neutral attitudes towards dental and oral health had moderate and poor dental and oral hygiene. It might be because they did not brush their teeth optimally, so dental and oral hygiene remained in the moderate and poor category. However, a neutral attitude can be an excellent opportunity to start a positive attitude toward dental and oral hygiene. Parental supervision is also critical in

maintaining oral and dental hygiene to protect from various diseases (Rahmaniar and Prasetyowati, 2022).

This paper also found a correlation between tooth brushing behavior and dental and oral hygiene. It is because behavior is the realization of knowledge and attitude into real action. Behavior is also a person's response to a stimulus in action. It is evident in the form of practices that others can easily observe or see (Sirat, 2015). This study result supports previous studies, which concluded a significant correlation between brushing behavior and the incidence of dental caries (Evyana, Rohmawati, and Perdana, 2016). Therefore, brushing behavior is one of the factors affecting dental and oral hygiene. A child who can brush well will be able to maintain good dental and oral hygiene and vice versa. Further, poor dental and oral can cause dental caries.

Furthermore, this research indicated a significant correlation between parental roles and dental and oral hygiene in school-aged children. The parental role is one factor affecting dental and oral hygiene. Therefore, parental knowledge is crucial for children's dental and oral hygiene. Other studies also found that caring and parental roles in using toothbrushes were significant (Devi, 2014). In addition, there was a correlation between maternal knowledge and action with plaque index in children (Guswan and Yandi, 2017). Dental and oral health in preschool age is essential. However, parents still often ignore dental diseases. They consider tooth decay common in children, whereas poor dental care potentially causes dental disease in childhood.

A study also revealed that the low motivation of parents caused nonoptimal brushing behavior in children. A lack of parental motivation made children ignore when parents gave orders to brush (Rahmaniar and Prasetyowati, 2022). Thus, parental roles regarding dental and oral hygiene are essential for primary school children. The roles include inviting children to check their teeth every six months and maintaining good oral hygiene in children. In addition, if there is tartar, immediately take the children to the dentist for a cleaning. Furthermore, they should motivate children to brush their teeth to improve their dental and oral hygiene.

## **CONCLUSION**

The determinant of dental and oral hygiene in school-aged children are knowledge and attitude toward oral and dental health, teeth brushing practice, and parental roles. School institutions should continue to hold dental and oral hygiene counseling programs, and students could maintain and continue to improve dental and oral hygiene. In addition, parents should continue to guide and supervise children in maintaining dental and oral hygiene.

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