

RELATIONSHIP BETWEEN LEVEL OF TOOTH BRUSHING KNOWLEDGE AND THE INCIDENCE OF TOOTH CARIES IN STUDENTS AT SDK SANTA MELANIA SURABAYA

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Abstract

Dental caries is a disease of dental tissue characterized by tissue damage, starting from the surface of the tooth, namely from the enamel, dentin, and extending towards the pulp. One of the factors causing caries in children is the lack of parental knowledge about children's dental and oral health. The purpose of this study was to determine the relationship between the level of knowledge of brushing teeth and the incidence of dental caries in students at SDK Santa Melania Surabaya. This type of research uses Analytical Observation of a population of 67 students at SDK Santa Melania Surabaya. The number of samples in this study was 57 students taken by simple random sampling. The independent variable is the level of knowledge of brushing teeth while the dependent variable is the incidence of dental caries. Based on the results of the Spearman correlation statistical test, it shows a relationship between the level of knowledge of brushing teeth and the incidence of dental caries in students. With $p = 0.005 < \alpha = 0.05$. To prevent tooth decay, the actions that can be taken are: providing counseling to increase knowledge of proper tooth brushing, it was hoped that children will brush their teeth properly, then checking dental health every 6 months and reducing consumption of cariogenic foods.

Keyword: Knowledge, Brushing, Teeth, Incident, Caries

1. INTRODUCTION

Dental caries is a disease of the dental tissue characterized by tissue damage, starting from the surface of the tooth, namely from the enamel, dentin, and extending towards the pulp. Dental caries is one of the most common forms of tooth damage experienced by preschool children, which can interfere with their growth and development process. One of the causes of the high rate of caries was poor dental and oral hygiene in children. According to Eny (2023), Dental and oral health was a support for achieving optimal body health. Maintaining dental and oral health conditions will affect the improvement of the quality of life and productivity of human resources. At the age of elementary school children, efforts were needed to maintain dental and oral health regularly, both in counseling, examinations and dental and oral health care by parents, schools and related government agencies.

From the World Health Organization (WHO) 2017 data, dental caries in the South - East Asia region reached 75% - 90% of people affected by dental caries worldwide, 60% - 90% of children experience dental caries. According to data from the PDGI (Indonesian Dentists Association), 89% of dental caries sufferers were children (Khusnul, 2021). Based on the Indonesian Ministry of Health (2019), the prevalence of dental caries for East Java Province is 42.44%. The high prevalence of dental and oral diseases, especially dental caries, was generally caused by factors of knowledge, attitudes and behavior or actions in maintaining dental health which are still low (K. I. Nurul et al, 2023). An initial survey was conducted at SDK Santa Melania Surabaya to 13 students and data was obtained, thirteen students stated that they had experienced toothache, 12 out of 13 students stated that they rarely brushed their teeth before going to bed, 9 of them

had cavities, and 12 other children also stated that they liked sweet foods such as ice cream, chocolate, candy, and biscuits.

Dental caries in preschool children was quite dangerous, namely teeth become porous, have holes and even break, causing children to lose their chewing ability and disrupt digestion. One factor that causes caries in children was the lack of parental knowledge about children's dental and oral health. Parents assume that dental caries is something that was normal for young children and tends to be underestimated because it was rarely life-threatening. Parents who pay less attention to daily food, the wrong way of brushing their teeth, the wrong time to brush their teeth, children rarely check their dental health every 6 months, consume sweet and sticky foods (Nur et al, 2021). Children who do not brush their teeth properly will cause caries. Caries has a bad impact and affects the quality of life for children. Caries will cause pain and discomfort. This will interfere with children's daily activities, experience decreased learning abilities because they do not do assignments and answer questions as well as children who are not bothered by toothache.

Dental and oral health maintenance efforts must be carried out early on at elementary school age considering that dental and oral diseases are in the top ten most common and largest diseases in various regions. Knowledge was very important to be a determinant for someone in behaving. A person's motivation to care for their teeth in order to avoid dental caries was obtained from the right knowledge when someone can maintain their dental and oral health (Permatasari et al, 2023). In schools, not only do they provide core education but they also provide education for their students. Based on the background above, researchers do not yet know whether there was a Relationship between the Level of Knowledge of Brushing Teeth and the Incidence of Caries in Students. So researchers were interested in conducting research on the Relationship between the Level of Knowledge of Brushing Teeth and the Incidence of Dental Caries in Students at SDK Santa Melania Surabaya.

2. METHODOLOGY

This type of research was Analytical Observation. Using a Cross Sectional approach, which was a type of research that emphasizes the time of measurement/observation of independent and dependent variable data only once at one time. With this study, the prevalence or effect of a phenomenon (dependent variable) will be obtained in relation to the cause (independent variable) (Sari, 2022). The research was conducted at SDK Santa Melania Surabaya from January to December 2024.

The population in the study were students at SDK Santa Melania Surabaya totaling 67 students. Sampling used a simple random sampling technique, namely by lottery, and the sample was obtained using a sample size formula of 57 students. The independent variable in this study was the level of knowledge of brushing teeth and the dependent variable in this study was the incidence of dental caries. The measuring instrument used in this study was a questionnaire on the level of knowledge of brushing teeth containing 10 questions about brushing teeth and for examination of dental caries using observation and questionnaires.

3. RESULTS

3.1 Frequency Distribution of Students Based on Toothbrushing Knowledge Level at SDK Santa Melania Surabaya 2024

Table 1. Frequency Distribution of Students Based on Toothbrushing Knowledge Level at SDK Santa Melania Surabaya 2024

Pengetahuan	Frequency	Percentage (%)
Low	30	53
Sufficient	17	30
Good	10	17
Total	57	100

Based on Table 1, the results of the frequency distribution in this study, it was found that the majority (53%) of students had a low level of knowledge about brushing their teeth and a small proportion (17%) had good knowledge.

3.2 Frequency Distribution of Students Based on the Incidence of Dental Caries at SDK Santa Melania Surabaya 2024

Table 2. Frequency Distribution of Students Based on the Incidence of Dental Caries at SDK Santa Melania Surabaya 2024

Dental Caries	Frequency	Percentage (%)
No Caries	9	15
Ligh	8	14
Moderat	14	25
Severe	26	46
Total	57	100

Based on table 2, the results of the frequency distribution almost half (46%) of students experienced severe dental caries.

3.3 Cross Tabulation of Tooth Brushing Knowledge Level with Dental Caries Incidence in Students at SDK Santa Melania Surabaya 2024

Table 3. Cross table of the relationship between knowledge about tooth brushing and the incidence of caries at SDK Santa Milenia Surabaya 2024

Level of knowledge \ Caries	Caries				Total
	Severe	Moderat	Light	No Caries	
Low	19 63%	5 17%	3 10%	3 10%	30 100%
Sufficient	5 29%	6 35%	4 24%	2 12%	17 100%
Good	2 20%	3 30%	1 10%	4 40%	10 100%
Total	26 46%	14 25%	8 14%	9 15	57 100%
Statistical Test Result "Spearman Rho" $\alpha = 0,05$; P = 0,005					

Based on table 3, the results of the frequency distribution shows that most (63%) of students have poor knowledge of brushing their teeth with severe dental caries. And almost half (40%) of students have good knowledge of brushing their teeth and do not experience dental caries. There was a Relationship between the Level of Tooth Brushing Knowledge and the Incidence of Tooth Caries in Students at SDK Santa Melania Surabaya.

4. CONCLUSIONS

- The results of the frequency distribution in this study, it was found that the majority of students had a low level of knowledge about brushing their teeth and a small proportion had good knowledge.
- The results of the frequency distribution almost half of students experienced severe dental caries.
- There is a relationship between knowledge of brushing teeth and the incidence of caries in students at SDK Santa Melania Surabaya

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