

Overview of Dental Caries in Correlation with Tooth Brushing Habit and Dental Visit on Elementary School Students in Central Maluku

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ABSTRACT

Introduction: Epidemiological studies showed that dental caries is most common among school students throughout the world. According to the World Health Organization (WHO), the prevalence of dental caries in school age children is still high. Problems that caused by dental caries if left untreated properly can impact many aspects by causing pain, discomfort, and potential school absences due to pain. In addition, dental caries can also cause a discomfort in chewing food, decreasing appetite, inadequate nutrition, and affecting their overall growth and development. The most common cause of dental health problems in school-aged children is poor oral hygiene and lack of regular dental visits, which makes both of these as the primary factors in preventing dental caries.

Objective: To describe the incidence of dental caries in correlation with tooth brushing and dental visit frequency on elementary school students in central Maluku.

Methods and Materials: A descriptive study with a cross-sectional design which using questionnaire to determine the tooth brushing habits and dental visits, and also performing dental examination to determine the dental caries status (DMF-T). The research sample was taken from 14 elementary schools on Seram Island, Maluku with a total sampling technique which was carried out by recording the total number of elementary students that are presents at that time.

Result: Of the 799 student examined, 410 were male student and 349 were female student. Good toothbrushing habits were reported by 650 students, while 152 students reported poor toothbrushing habits. A total of 647 student had never visited a dentist, while 152 students had visited a dentist. The incidence of dental caries was higher in a male student with DMF-T (3) compared to female students with DMF-T (2,3).

Conclusion: Good toothbrushing habits were reported by most of the students, but most of the students had never visited a dentist. The incidence of dental caries was higher in a male student compared to female students.

KEYWORDS: Dental caries, brushing teeth, dental visit, elementary school in central Maluku

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I. INTRODUCTION

Dental caries is a major problem among many dental and oral health cases throughout the world, both in developed and developing countries.^{1,2} According to the results of the Basic Health Research (RISKESDAS) 2018 in Indonesia shows that the prevalence of dental caries was 88,8%.³ The 2018 RISKESDAS data also shows that the prevalence of dental caries in elementary school children in Central Maluku is high, namely 92,06%.⁴ Children aged 6-12 years are the group that most often experiences dental and oral

health problems, therefore require proper attention and good oral care.

According to Riyanti, elementary school age is the ideal time to train a child's motor skills. The ability to brush teeth properly and correctly is an important factor in maintaining children's dental and oral health. Safela et al (2021) explains that there are several behavioural factors that influence the occurrence of dental caries, such as tooth brushing habits, frequency, and techniques.⁵ Other factor that also influences the dental caries status is dental visits.^{3,6,7} Children's dental

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and oral health can be monitored and maintained with regular dental visits so that the risk of dental caries in children decreases.⁸

This study aims to explain the incidence of dental caries with tooth brushing habits and dental visits in elementary school students in Central Maluku. It is also hoped that the results of this study will provide valid evidence-based data because it is based on data collection from a dental and oral health survey on a specific regional population of elementary school children.

II. MATERIALS AND METHODS

This descriptive type of cross-sectional study was carried out at Seram Island, Maluku, from March 2024 to December 2024. The population in this study was all elementary school students in Central Maluku Regency, which were divided into four sub-districts in West Seram (Amalatu, West Kairatu, Huamual, and Taniwei) and four sub-districts in Central Maluku (Amahai, Teon Nila Serua, Tehoru, North West Seram). The sampling technique used in this study is total sampling, which was carried out by recording the total number of elementary students that are presents at that time and willing to participate, including male and female aged 7-12 years old with the total 799 respondents.^{9,10} Data were collected using questionnaire to determine the tooth brushing habits and dental visits, and also performing dental examination to determine the dental caries status (DMF-T). Data that were collected from the questionnaire were edited, coded, and processed, for further univariate data analysis.^{9,10,11}

III.RESULTS

The results of the univariate test in this study were in the form of frequency distribution of respondents based on age, frequency distribution of respondents based on gender, frequency distribution of respondents based on tooth brushing habits, frequency distribution of respondents based on dental visit, frequency distribution of respondents based on dental visit by age, and frequency distribution of respondents based on gender and dental caries experience.

Table 1. Frequency distribution of respondents based on age

Age	N	%
7-8 years	246	30,8%
9-10 years	295	36,9%
11-12 years	258	32,3%
Total	799	100,0%

Based on table 1, it was found that the characteristics of students were mostly between the ages of 9-10 years with a total of 295 students (36,9%), students aged 11-12 years

were 258 (32,3%), and the fewest were aged 7-8 years with a total of 246 (30,8%).

Table 2. Frequency distribution of respondents based on gender

Gender	N	%
Male	410	51,3%
Female	389	48,7%
Total	799	100,0%

Table 2 shows that there were 410 male students (51,3%) and 389 female students (48,7%).

Table 3. Frequency distribution of respondents based on tooth brushing habits

Tooth Brushing Frequency	n	%
Two times a day/good	650	81,4%
Once or rarely/poor	147	18,6%
Total	799	100,0%

Table 3 shows the result of good tooth brushing habits in 650 students (81,4%) and 147 students (18,6%) in the poor category.

Table 4. Frequency distribution of respondents based on dental visit

Kunjungan ke dokter gigi	n	%
Never	647	81,0%
Once	152	19,0%
Total	799	100,0%

Based on table 4, it shows that 647 students (81,0%) have never visited a dentist and 152 students (19,0%) have visited a dentist.

Table 5. Frequency distribution of respondents based on dental visit by age

Dental Visit	7-8 years	9-10 years	11-12 years
Never	210	233	204
Once	36	62	54
Total	410	389	258

Table 5 shows that the average number of students who have never visited a dentist is the same, 210 students aged 7-8 years, 233 students aged 9 - 10 years and 204 students aged 11-12 years have never visited a dentist. Those who

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have visited a dentist are 36 students aged 7-8 years, 62 students aged 9-10 years and 54 students aged 11-12 years.

Table 6. Frequency distribution of respondents based on gender and dental caries experience

Gender	Jumlah Siswa	D	M	F	DMF-T
Male	431	895	328	3	3,0
Female	368	698	160	1	2,3
Total	799	1693	524	4	

Table 6 shows male students with DMF-T (3,0) and female students with DMF-T (2,3).

IV. DISCUSSION

Research conducted on elementary school students in Central Maluku showed that overall there were 410 (51,3%) male students and 389 (48,7%) female students. The age range of 7-8 years was 246 (30,8%), the age of 9-10 years was 295 (36,9%) and the age of 11-12 years was 258 (32,3%).

According to table 6, it appears that male students have higher caries experience with DMF-T (3) compared to female students with DMF-T (2,3). This is because gender variations can influence children's behavioral patterns in maintaining oral hygiene, also the aesthetic needs of female are indeed higher.⁵ Furthermore, it was found that there were 328 missing teeth in male students and 160 missing teeth in female students, this may be due to the lack of knowledge about the importance of treating deciduous teeth with cavities.

Based on table 3, tooth brushing habit is mostly in good category (twice a day) for 650 students (81,4%). Around 147 (18,6%) students are in the category of poor tooth brushing habits, or they only brush their teeth once a day or rarely. Most of the students did not know how many times and when is the best time to brush the teeth. Tooth brushing is a good activity to continue to get children used to it and they also need to be trained intensively in carrying out dental and oral care including the right time to brush the tooth and how to choose a good toothbrush. According to Utami, A. P S, (2018) good tooth brushing habits are the most effective way to prevent dental caries, because brushing teeth can remove plaque that causes dental caries. Tooth brushing habit is one of the important factors to prevent children from dental caries.¹² Brushing teeth properly and correctly at the right time can reduce dental caries occurrence in children. One of the most effective way to prevent dental caries is to continuously monitor children's ability to brush their teeth so that they brush it properly.^{13,14} Brushing teeth can remove plaque on teeth that causes dental caries. Therefore, good tooth brushing habit can prevent dental caries in school children.

This study also shows that students aged 7-8 years who have never visited a dentist are 210 students and those who have visited a dentist are only 36 students, while students aged 8-10 years who have never visited a dentist are 233 students and those who have visited a dentist are 62 students, also students aged 11-12 years who have never visited a dentist are 204 students and those who have never visited a dentist are 54 students. Overall, the results showed that 647 students (81%) had never visited a dentist and only 152 students (19%) had visited a dentist. Regular visits to the dentist at least once every 6 months are an effective way to prevent dental caries in school children. Andini & Tjahyadi said that dental visit is one of the primary prevention for oral diseases which is carried out before the clinical symptoms appears. Dental visits are carried out to examine the oral health and to detect diseases or abnormalities in the oral cavity early on, and most importantly to monitor the children's dental and oral health yearly.¹⁵ Making regular visits to the dentist will ensure optimal dental and oral health status. Maluku Province is an island region and far from the capital city of Jakarta, so there are very few dentists and are limited to district towns. Dentists only come to the sub-district health centers on certain schedules, and access to the city center and education centers is difficult, making it also difficult to convey every information about dental and oral health. The health center is also experiencing a shortage of health workers and the most vacant position is dentists. The distribution of health workers in Indonesia currently, especially dentists, is not evenly distributed. The Ministry of Health is encouraging the equal distribution of dentists in the Eastern Indonesia region, regulating the distribution of dentists and providing dental scholarships.

V. CONCLUSION

Most students brush their teeth twice a day, with a good tooth brushing habits in 650 students (81,4%) and 147 (18,6%) students are in poor category, only once a day or rarely. Overall, 647 students (81%) had never visited a dentist and 152 students (19%) had visited a dentist. The dental caries status was still very high with findings that male students have higher caries experience with DMF-T (3) compared to female students with DMF-T (2,3).

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