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Description of Knowledge on Oral Health Maintenance and Its Impact on Dental Caries in Permanent Molars teeth Among Fifth-Grade Students

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Abstract

Introduction: Knowledge is the result of human awareness, which occurs after an individual perceives a specific object. A child's knowledge of dental caries in permanent molars can vary depending on their age and the level of education they have received. Dental caries is a condition characterized by tooth decay caused by acids produced by bacteria in the mouth. The aim of this study was to describe the knowledge of oral health maintenance and its impact on dental caries in permanent molar teeth among fifth grade students of elementary school in Medan Tuntungan District of North Sumatera, Indonesia. **Method:** The type of this research was a descriptive study, with a survey method. The total of 30 samples was selected from the total students of fifth grade student of 064023 elementary school, Medan Tuntungan District, of North Sumatera, Indonesia. The data collection from the oral and dental health knowledge questionnaire and clinic examination to see the caries of permanent molars teeth. **Result:** The results of the study revealed that the knowledge about maintaining oral and dental health concerning caries in permanent molars among fifth-grade students showed 9 students (30%) were in the very low DMF-T category, 13 students (43.33%) were in the low category, and 8 students (26.67%) were in the moderate category. **Conclusion:** The majority of students located in low DMF-T category, with 13 students (43.33%). Despite this, most students had good knowledge, but still need maintenance and repair because their DMF-T scores were still in the low category.

Keywords: Knowledge, Permanent molar caries, Dental health maintenance.

INTRODUCTION

Health is a crucial aspect of sustaining human life, encompassing both physical and mental well-being. In addition to physical and mental health, oral and dental health also require attention, as they can significantly impact overall body health. Oral and dental health are integral components of overall health and cannot be separated from human life [1]. According to Martyn (2018) [2], from a scientific perspective, many people are still unaware of the importance of maintaining oral and dental health. As a result, a significant portion of the population does not realize that the mouth is not merely a gateway for food and drink but also a potential entry point for microorganisms that can cause dental damage.

According to the World Health Organization (WHO, 2018 cit Riskesdas, 2018), oral health is one of the main indicators of overall health, well-being, and quality of life. It is characterized by a condition of the oral cavity, including the molars and supporting tissue structures, that is free from pain and disease oral infections, periodontal (gum) disease, tooth decay, tooth loss, and other conditions that can limit a person's ability to bite, chew, smile, and speak. The 2018 Basic Health Research (RISKESDAS) report shows that the oral health condition of the Indonesian population is generally poor, with an increase from 25.9% to 57.6% of the population experiencing oral problems. Only 10.2% of the population received medical dental care, and only 2.8% of Indonesians brushed their teeth properly.

In North Sumatra, according to the 2018 RISKESDAS report, the prevalence of oral health problems was 54.6%, with only 6.7% receiving care from dental professionals. The prevalence of cavities in North Sumatra is 43.1%, with dental problems in children aged 5-10 years reaching 92.6% [3]. Knowledge is obtained through human perception of certain objects. Knowledge about oral hygiene includes an understanding of proper brushing techniques, the impact of diet on dental health, and when is the right time to do routine dental examinations.

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Children's knowledge about dental caries in permanent molars can vary depending on their age and the level of education they receive. Education about oral health should start early, with parents and teachers playing an important role in improving children's knowledge about oral health [4].

Dental caries is a condition characterized by tooth decay caused by acids produced by bacteria in the mouth [5]. The first permanent molars, which erupt between the ages of 6-10 years, replace primary teeth and are particularly vulnerable to caries [6]. Dental caries in the permanent molars of children aged 6-10 years refers to the damage these teeth may suffer, such as cavities or demineralization, due to acid exposure from bacterial activity [7].

Based on the aforementioned, the author is interested in studying the knowledge and behavior of children in maintaining oral and dental health concerning the occurrence of caries in permanent molars among students at SD 064023, Medan Tuntungan District. This research focuses on elementary school students, as this age group requires special attention in developing proper attitudes toward oral and dental health maintenance.

METHODOLOGY

This study used a descriptive research with a survey method to describe children's knowledge and behavior in maintaining oral health, especially regarding the incidence of caries in permanent molars in students of 064023 elementary school, Medan Tuntungan District, North Sumatera Province of Indonesia.

The population in this study consisted of 30 student of fifth grade students. The data were used: primary and secondary data. Primary data was collected through questionnaires filled out by the respondents. Secondary data included information on the number and details of fifth grade students. Data collection was conducted through direct observation caries of Molar permanent. The students were given questionnaires to complete, and dental examinations were conducted to assess caries in their permanent molars.

The tools and materials used in this study include a mouth mirror, probe, tweezers, apron, rinse cup, gloves, mask, kidney dish, examination form, and questionnaire. The materials consist of cotton, tissue, and mineral water for rinsing.

The research procedure began with the preparation phase, which involved obtaining permission from the school principal, conducting a preliminary survey by examining the oral cavities of 10 students, selecting the study sample, and determining the research schedule.

During the implementation phase, data collection was carried out with 30 fifth-grade students. The preparation included setting up a location for the examination of caries in permanent molars. The students were given questionnaires to complete, followed by an educational session using posters. Afterward, a dental examination was performed to assess caries in the permanent molars, and the findings were recorded on the dental caries examination sheet.

Data processing involved several steps: Editing by reviewing the data for accuracy, Coding, by Assigning codes to the data, Data Entry, by Inputting the data into a database, Tabulating by Organizing the data into tables. The data were analyzed descriptively by calculating the percentages of the collected data, which were presented in frequency tables. The percentages for each category were explained in detail.

RESULTS

The results of this study are presented in the following table.

Table 1: Frequency Distribution of Respondents Based on Gender

Characteristics	n	%
Gender		
Female	21	70
Male	9	30
Total	30	100

The table 1 above presents the frequency distribution of respondents by gender, showing that out of a total of 30 participants, 21 (70%) were female, and 9 (30%) were male. This indicates that the sample was predominantly female, with females constituting 70% of the respondents and males representing the remaining 30%.

Table 2: Frequency Distribution of Respondents Based on Age

Age	n	%
9-10	6	20
11-12	22	73,33
13-14	2	6,67
Total	30	100

The table 2 describe the age distribution among the respondents. Out of 30 participants, the majority, 22 (73.33%), were aged 11-12 years. This is followed by 6 respondents (20%) who were 9-10 years old, and 2 respondents (6.67%) who were 13-14 years old. This indicates that most respondents were in the 11-12 age group.

Table 3: Frequency Distribution of Knowledge about Dental and Oral Health Maintenance

Criteria	n	(%)
Baik	28	93,33
Sedang	2	6,67
Buruk	0	0
Total	30	100

The table 3 summarizes the distribution of respondents' knowledge regarding oral and dental health maintenance. Out of 30 participants, the vast majority, 28 (93.33%), demonstrated good knowledge. A small portion, 2 respondents (6.67%), had moderate knowledge, while none of the respondents (0%) showed poor knowledge. This indicates that almost all respondents possessed a good understanding of how to maintain their oral and dental health.

Table 4: Frequency distribution of caries in permanent molars by number of decays

Criteria	n	Prosentase (%)
Very low	9	30
Low	13	43,33
Mediun	8	26,67
High	0	0
Very high	0	0
Total	30	100

The table 4 describe the distribution of respondents based on their caries experience levels. Among the 30 participants, 9 (30%) were classified with a very low level of caries, 13 (43.33%) had a low level, and 8 (26.67%) were categorized with a moderate level of caries. No respondents were classified with high or very high levels of caries. This

indicates that the majority of respondents had either low or very low levels of caries, with no individuals exhibiting severe caries levels.

DISCUSSION

Based on the frequency distribution of gender and age among the fifth-grade students at SD Negeri 064023, Medan Tuntungan, the sample consists of 21 females (70%) and 9 males (30%), indicating a predominance of female respondents. The age distribution shows that 6 students (20%) are aged 9-10 years, 22 students (73.33%) are aged 11-12 years, and 2 students (6.67%) are aged 13-14 years, with the majority being in the 11-12 year age group.

The survey on oral and dental health maintenance revealed that out of 30 respondents, 28 students (93.33%) demonstrated good knowledge, 2 students (6.67%) had moderate knowledge, and none had poor knowledge.

Regarding dental caries experience, the DMF-T index results show that 9 students (30%) were classified with a very low level of caries, 13 students (43.33%) had a low level, and 8 students (26.67%) had a moderate level. A total of 58 permanent molars were affected by caries among the respondents. According to WHO, the prevalence of dental caries in children typically ranges from 60% to 90%, suggesting that the observed levels of caries could be influenced by the students' knowledge of dental health.

The questionnaire on oral and dental health maintenance consisted of 15 questions, with a highest possible score of 15 and a lowest of 0, administered to 30 respondents. This questionnaire covered topics such as methods for maintaining oral health, proper tooth brushing techniques, and the frequency of brushing. The two questions most frequently answered correctly by the students were about general oral health maintenance and the characteristics of an effective toothbrush. All 30 respondents (100%) correctly identified that proper brushing technique is crucial for maintaining oral hygiene and that an ideal toothbrush has soft bristles, a small head, and a comfortable handle, aligning with the recommendations of Pudentiana et al. (2020) [8-10].

However, the question about the prompt treatment of cavities was least correctly answered, with only 12 students (40%) providing the correct response. The proper characteristics of a toothbrush handle, which should be straight and easy to hold, and the primary treatment for cavities, which is filling, were also frequently misunderstood [11].

The DMF-T scores indicated that 9 students (30%) had a very low level of caries, 13 students (43.33%) had a low level, and 8 students (26.67%) had a moderate level of caries. The majority of students had a low DMF-T score (43.33%). Despite possessing good knowledge about oral health maintenance, the low DMF-T scores suggest that this knowledge may not be effectively applied in daily practices [12]. This could be due to inadequate implementation of oral hygiene practices or insufficient attention from both parents and schools regarding proper oral care [13].

Dental caries is a disease caused by the degradation of the enamel layer of the teeth, which can progress to involve the tooth's nerve due to bacterial activity in the mouth [14]. This condition is characterized by demineralization of the tooth's hard tissue, followed by the destruction of its organic material [15]. Consequently, bacterial infection, pulp necrosis, and infection spread to the periapical tissues can occur, leading to pain. Caries is progressive and cumulative; if left untreated over time, it is likely to worsen [16].

CONCLUSION

The conclusion of the research on oral and dental health maintenance among 30 fifth-grade students at SD Negeri 064023, Medan Tuntungan, reveals the following specific findings: The majority of students exhibited good knowledge about oral health, with 28 students (93.33%)

scoring well, while 2 students (6.67%) had moderate knowledge, and none had poor knowledge. In terms of caries experience, the DMF-T scores showed that 9 students (30%) had a very low level of caries, 13 students (43.33%) had a low level, and 8 students (26.67%) had a moderate level. Additionally, a total of 56 permanent molars were affected by caries among the respondents.

These findings suggest a high level of knowledge about oral health maintenance but a varying prevalence of caries, indicating a potential gap between knowledge and the practical application of oral hygiene practices. Establish a School Dental Health Program, that is recommended that SD Negeri 064023, Medan Tuntungan implement a School Dental Health Program (UKGS) to enhance the overall oral health care of all students. This program should focus on regular dental check-ups, preventive care, and education on proper oral hygiene practices, Enhance Parental Involvement that Parents are encouraged to actively participate in their children's dental health by providing guidance on effective oral hygiene practices. This includes ensuring children are brushing their teeth correctly and consistently, and addressing any issues related to dental care.

Conflicts of Interest

The author reports no conflicts of interest.

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