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Description Of Dental Caries And Cariogenic Food Consumption Behavior Among Third-Grade Students At Sdn 14 Dauh Puri Denpasar In 2025

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ABSTRACT

Dental caries remains a major health issue among school-age children, with cariogenic food consumption being one of the primary risk factors. Understanding the prevalence of caries and the associated dietary habits is crucial for early prevention efforts. This study aimed to describe the prevalence of dental caries and cariogenic food consumption behavior among third-grade students at SDN 14 Dauh Puri Denpasar in 2025. A descriptive cross-sectional design was used, involving 32 students selected as respondents. Data were obtained through structured interviews using a food frequency questionnaire and direct dental examinations to assess caries status. Univariate analysis was conducted to summarize the data. The results indicated that 62.5% of students had dental caries, while 37.5% were caries-free. In terms of cariogenic food consumption behavior, 50% of students fell into the frequent consumption category, followed by 34.3% in the rare category and 15.7% in the very frequent category. Among students with frequent cariogenic food consumption, 81.3% had dental caries. These findings suggest a overview of frequent intake of cariogenic foods and the presence of dental caries. The study highlights the need for targeted oral health education and dietary behavior interventions in elementary schools to reduce caries incidence. Efforts to reduce sugary food and beverage consumption should be prioritized to support long-term oral health among children. foods.

Keywords: dental caries, cariogenic food, elementary school children

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INTRODUCTION

Oral health is an integral part of overall health. Dental caries is one of the most common chronic diseases suffered by children worldwide. The World Health Organization (WHO) reports that 60–90% of school children globally experience dental caries. In Indonesia, the 2023 National Health Survey reported a caries prevalence of 43.6%, with Bali Province at 31.6%. Among children aged 5–9 years, the prevalence reached 49.9%.

One of the main factors associated with dental caries is the frequent consumption of cariogenic foods, such as candy, chocolate, biscuits, and cakes. These foods are high in sugar, sticky, and tend to adhere to the tooth surface, accelerating the demineralization of enamel. Children's eating habits are strongly influenced by their school environment and parental supervision. Without adequate education and awareness, unhealthy dietary practices can increase the risk of dental caries.

This study was conducted to describe dental caries prevalence and cariogenic food consumption behavior among third-grade students at SDN 14 Dauh Puri Denpasar in 2025.

METHODS

This study employed a descriptive quantitative research design conducted at SDN 14 Dauh Puri Denpasar in 2025. The research was carried out in April 2025 within the school environment, focusing on third-grade students as the population and sample. A total of 32 students were included as research participants using a total sampling technique, meaning all students in the third grade were involved as respondents. The inclusion criteria consisted of students who were actively enrolled in third grade and willing to participate voluntarily in the study. Meanwhile, the exclusion criteria included students who were absent during data collection or declined to participate.

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The data collection procedure involved two main steps. First, students were interviewed using a structured interview guide to assess their frequency of cariogenic food consumption. This guide listed common cariogenic food items such as candies, chocolates, sweet drinks, and pastries, and students were asked to report how often they consumed each item. Second, clinical dental examinations were performed to assess the presence of dental caries, using standard dental examination tools under appropriate hygienic conditions. Examinations were conducted by trained personnel following proper dental health assessment protocols. In addition to the primary data, secondary data were collected from the school's attendance records to verify the participants' enrollment status and attendance during the study period.

The instruments used in this study included an interview questionnaire to evaluate the frequency of cariogenic food consumption and dental examination tools to assess caries status, such as dental mirrors, explorers, and disposable gloves. All instruments were prepared and calibrated before use to ensure reliability and consistency in data collection.

Data were coded, tabulated, and analyzed using univariate descriptive analysis techniques to describe the frequency distribution of each variable. The analysis focused on determining the prevalence of dental caries and categorizing the frequency of cariogenic food consumption (rare, frequent, and very frequent). The results were interpreted in relation to the research objectives and used to identify gaps in current oral health behavior and practices among school-aged children. These findings are expected to support the development of targeted oral health education and preventive strategies at the elementary school level.



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RESULTS

Table 1. Distribution of dental caries status among third-grade students at SDN 14 Dauh Puri Denpasar, 2025

Dental Caries Status Frequency (f) Percentage (%)		
Caries	20	62.5
Caries-free	12	37.5
Total	32	100

Table 2. Distribution of cariogenic food consumption behavior

Category	Frequency (f) Percentage (%)
Rare (1 time)	11 34.3
Frequent (2 times)	16 50.0
Very frequent (>3 times)	5 15.7
Total	32 100

Table 3. Dental caries based on cariogenic food consumption behavior

Category	Caries-free (f)	Caries-free (%)	Caries (f)	Caries (%)
Rare (1 time)	9	81.8	2	18.2
Frequent (2 times)	3	18.7	13	81.3
Very frequent (>3 times)	2	40.0	3	60.0

DISCUSSION

The results of this study revealed that 62.5% of third-grade students at SDN 14 Dauh Puri Denpasar suffered from dental caries, a figure that exceeds the provincial average for Bali, which stands at 31.6% (Kementerian Kesehatan RI, 2023). This higher prevalence indicates a significant localized burden of oral health problems among this age group and

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emphasizes the urgency for targeted intervention. The majority of students also fell into the “frequent” category of cariogenic food consumption, and notably, this group accounted for the highest proportion of dental caries cases (81.3%). These findings support the initial research objective of identifying the relationship between cariogenic dietary behavior and caries prevalence, reinforcing the assumption that frequent intake of sugary and sticky foods directly correlates with higher caries rates.

The association observed in this study aligns with previous research that identified diet as a primary determinant in the development of dental caries. Arsal et al. (2022) demonstrated a strong and statistically significant correlation between frequent consumption of cariogenic foods and the occurrence of caries among school-aged children. Similarly, Kusmana (2022) emphasized that sugary and adhesive food items accelerate enamel demineralization due to prolonged exposure to fermentable carbohydrates, thus increasing the risk of dental decay. These studies support the interpretation that not only the quantity but also the frequency and type of food consumed contribute significantly to the progression of caries. In this study, children who consumed cariogenic foods frequently had a substantially higher proportion of dental caries, confirming the mechanism by which repeated acid attacks lead to enamel breakdown.

Beyond dietary patterns, the role of oral hygiene practices cannot be overlooked. Although this study did not directly measure hygiene behavior, it is likely that inadequate brushing habits, such as skipping brushing before bedtime or improper technique, compounded the effects of frequent sugar intake. Sheiham and James (2015) noted that tooth brushing with fluoride toothpaste is a critical mitigating factor in caries prevention, especially when dietary risks are high. Therefore, the combination of high sugar consumption and poor oral hygiene could synergistically increase the caries burden among these students.

The implications of these findings are far-reaching. First, they highlight a pressing need for structured school-based oral health promotion. Schools should take an active role

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in regulating food sold within their canteens, limiting the availability of sugary and sticky snacks, and instead encouraging the consumption of healthier options such as fruits, vegetables, and dairy products. In addition, oral health education should be integrated into the school curriculum, with routine tooth brushing campaigns and access to dental check-ups. Second, parental involvement is equally vital. Parents should be educated on the importance of monitoring children's eating habits and ensuring that oral hygiene practices are consistently followed at home. Parental modeling of healthy behaviors, regular dental visits, and limiting children's exposure to high-sugar snacks at home are strategies that can substantially reduce the risk of dental caries.

Furthermore, these findings underscore the need for local government and health authorities to invest in community-level oral health interventions, particularly in urban areas undergoing lifestyle transitions where exposure to processed foods is increasing. The study also adds to the growing body of evidence indicating that early intervention during childhood is crucial for establishing lifelong oral health habits. If left unaddressed, the current trends may lead to more severe oral health issues, increased treatment needs, and negative impacts on children's growth, nutrition, and academic performance.

In summary, this study confirms that frequent consumption of cariogenic foods is a key factor contributing to the high prevalence of dental caries among students in SDN 14 Dauh Puri Denpasar. The findings strongly support the call for preventive strategies involving schools, parents, and local health authorities to mitigate the risks and promote better oral health among children.

CONCLUSION

The research aimed to describe the prevalence of dental caries and cariogenic food consumption behavior among third-grade students at SDN 14 Dauh Puri Denpasar in 2025.

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Findings are in line with the stated objectives and clearly illustrate overview of frequent intake of cariogenic foods and the presence of dental caries.

Most third-grade students experienced dental caries, with a prevalence rate of 62.5%, indicating a significant oral health burden in this population. Cariogenic food consumption behavior was most commonly categorized as frequent, accounting for 50% of students. Among this group, the highest rate of dental caries was recorded, with 81.3% affected.

These findings confirm that frequent consumption of sugary and sticky foods is associated with an increased risk of dental caries. Results reinforce the importance of preventive strategies that target unhealthy dietary patterns in children. Promoting healthy food choices, enhancing oral hygiene education in schools, and encouraging active parental involvement are essential steps toward improving oral health in early childhood.

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