The Impact of Cariogenic Food Consumption on Dental Caries Rates Among Children

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ABSTRAK

Latar Belakang: Infeksi gigi dan mulut yang paling banyak diketahui adalah karies gigi. Jaringan keras gigi, seperti email, dentin, dan sementum, lama kelamaan akan terinfeksi karies gigi. Karies gigi dapat menimbulkan rasa sakit yang mengganggu aktivitas sehari-hari, menghambat fiksasi, dan bahkan dapat menyebabkan hilangnya rasa lapar karena kesulitan menggigit. Penelitian ini bertujuan untuk membedah hubungan pemanfaatan jenis pangan kariogenik dengan kejadian karies gigi pada remaja di RA Al-Fattah Gresik. Metode: Jenis eksplorasi yang digunakan adalah logis dan observasional dengan menggunakan rencana cross sectional. Populasinya adalah 112 anak dan contoh yang digunakan adalah 88 anak dengan menggunakan prosedur pengujian dasar yang tidak teratur. Dalam ulasan ini, survei FFQ (Food Recurrence Quotionnaire) digunakan. Tes faktual menggunakan Chi-kuadrat, Hasil: Hasil penelitian menunjukkan bahwa dari 88 responden yang mengalami karies gigi, terdapat 37 anak (42,0%) dan 49 anak (55,7%) mengonsumsi jenis makanan kariogenik dengan tingkat pemanfaatan yang tinggi. Analisis uji Chi-Square menghasilkan p-value masing-masing sebesar 0,000 dan 0,005, Kesimpulan: Ada hubungan antara pemanfaatan jenis pangan kariogenik dengan kejadian karies gigi pada remaja di RA Al-Fattah Gresik.
Kata Kunci : Karies gigi, Makanan kariogenik.

ABSTRACT

Background: The most well-known dental and oral infection is dental caries. The hard tissues of the teeth, such as enamel, dentin, and cementum, become infected with dental caries over time. Dental caries can cause torment that frustrates everyday exercises, prevents fixation, and might in fact make loss of hunger due trouble biting. This study means to dissect the connection between utilization of cariogenic food varieties and the occurrence of dental caries in youngsters at RA Al-Fattah Gresik. Method: The sort of exploration utilized is logical and observational utilizing a cross sectional plan. The populace was 112 kids and the example utilized was 88 youngsters utilizing basic irregular testing procedures. In this review, the FFQ (Food Recurrence Quotionnaire) survey was utilized. Factual tests use Chi-square. Results: The aftereffects of this study showed that of the 88 respondents who experienced dental caries, there were 37 kids (42.0%) and 49 youngsters (55.7%) ate cariogenic food varieties with elevated degrees of utilization. The Chi-Square test analysis yielded p-values of 0.000 and 0.005 respectively, Conclusion: There is a connection between utilization of cariogenic food varieties and the occurrence of dental caries in youngsters at RA Al-Fattah Gresik.

Keywords: Dental Caries, Cariogenic Food

INTRODUCTION

Dental caries is an ongoing disease that collects in the hard tissues of the teeth including varnish, dentin, and dental veneers. If left without any treatment at all, the disease gets worse and can even spread (Zainur, 2019). The course of tooth decay disease begins with damage to the tooth surface, especially the veneer layer to the dentin, then extends to the pulp (Jyoty, 2019). Tooth decay is an oral health condition that applies to all ages, including adults. Proper treatment is required due to the high rate of tooth decay to prevent the entire rate of tooth decay in children (WHO, 2019).

Children are actually vulnerable to tooth decay so they need more attention and care, especially by teaching them how to clean their teeth and take care of their teeth from an early age so that children are used to it until adulthood (Mukhbitin, 2018). The duty of guardians has a major influence in determining the welfare status of children, especially maintaining oral hygiene. Parents, especially mothers, have a greater role in this regard as they are the primary educators who can teach children how to maintain dental health. They can also check the condition of their children's teeth and oral cavity through the food choices they eat. (Farizah, 2021). The group that is vulnerable to tooth decay or other oral health problems is preschool children

he high rate of tooth decay may be due to a lack of awareness about oral hygiene (Nainggolan, 2019). Maintaining children's oral health is very important because the current state of milk teeth is very important because of the condition of the permanent teeth that will be replaced later (Jannah, 2020). Children with tooth decay will experience mouth pain, difficulty chewing, and can interfere with eating habits and difficulty sleeping. It can even cause children to have difficulty concentrating, disrupting children's learning and social activities (Avpro et., al. 2020).

Considering that 80% of the total population in Indonesia has dental problems, dental diseases are often a very interesting problem in Indonesia because of the habits that cause tooth decay and gum disease. In other words, no effort has been made to solve this problem. Behavioral, environmental, and population distribution factors in Indonesia have led to an increase in dental caries cases, as well as varied dental care services in the Indonesian population (Alfiah, 2018).

According to Community Dental Oral Epidimiology in Indonesia, preschool children are at high risk of tooth decay (Jyoty, 2019). The cause of tooth decay in children is the snacks available at school, which mostly consist of cariogenic foods (containing carbohydrates/sweet, soft textured, chewy and sticky) such as chocolate, ice cream, candy, cakes, and so on (Astannudinsyah, et al., 2019). According to Blum's theory, 4 important factors that influence the oral health of a community or individual are genetics, behavior, environment (social and socio-cultural) and health services (Mukhbitin, 2018).

According to the Global Burden of Disease Study (2016), as many as 3.58M people worldwide suffer from oral health problems, including dental caries (Kemenkes RI). Based on data from the Basic Welfare Exploration Results (RISKESDAS), the number of oral and dental diseases in Indonesia has consistently increased by 57.6%, the number of people receiving dental health services is 10.2% and the number of people brushing their teeth is 2.8%. . % Therefore, maintaining dental health requires health improvement (Riskesdas, 2018).

From the research findings of Rosidi. A, et., al. (2014) with the title "Relationship between Cariogenic Food Consumption and Dental Caries Incidence at SDN 1 Gogodalem Bringin Semarang". 40 (85.1%) of the 47 children who participated in the survey had dental caries, while most of the rest did not. 7 children (or 14.9%), The number of children who consumed high cariogenic foods was 40 (85.1%). There were 7 children who had low cariogenic food use (14.9%). By using the Chi Square test, the p-value = 0.000 < a (0.05) was obtained, this is due to the relationship between the use of cariogenic foods and the frequency of dental caries in children at SDN 1 Gododalem.

Dari hasil pemeriksaan Setyaningrum. Y dan Rujianto. E,. (2016) dengan judul "Hubungan Konsumsi Makanan Kariogenik Dengan Kejadian Karies Gigi Di SDN Krandon Kudus". Sebanyak 44 responden, 34 diantaranya (77,3%) mengonsumsi makanan kariogenik. Sementara itu, sebanyak 35 responden (79,5%) melaporkan mengalami karies gigi yang mayoritas dialami

oleh pelajar. Dengan hasil percobaan Chi-Square diperoleh p valuasi = 0,018 (p < 0,05) maka dari tinjauan tersebut terdapat hubungan antara varietas pangan kariogenik. karena prevalensi karies gigi pada siswa SDN Krandon Kudus.

From the aftermath of Alfiah's explorations. A,. (2018) with the title "The Relationship between Cariogenic Food Consumption and the Incidence of Dental Caries at SDN Bung Makassar", with 77 respondents. Utilizing the Back to back Examination procedure. Information was collected through polling, and dissected using Mixrocoft Success and the SPSS program. In addition, a p value of 0.003 was found in two Chi-Square tests. At the end of the study, it was found that there was a relationship between the type of cariogenic food and the frequency of dental caries in adolescents in grades 1-3 of SDN Bung Makassar.

Based on the above events, that dental caries is still widely suffered by children, many of them do not pay attention to diet and only brush their teeth at any time without cleaning the entire surface of the teeth and not even a few people are indifferent and think that dental caries is a natural thing to happen among children even though there are many impacts of dental caries, among others, difficulty chewing so that diet is disrupted, dental caries can also cause dental complications, change the structure of the jaw, cause gum disease (gingivitis) can cause pus / digestive abscess (severe pain). For this reason, the researcher is interested in conducting research related to this problem and raising it as a thesis title, namely "The Relationship between Cariogenic Food Consumption and the Incidence of Dental Caries in Children in RA Al Fattah Gresik".

LITERATURE REVIEW

Dental caries is a disease caused by damage to tooth enamel, which extends to the dental nerve and bacterial activity in the mouth. The bacteria are Streptococcus mutans and Lactobacillus which can cause tooth loss and even infection (Susanto, 2018). And if left untreated, tooth decay will cause pain that hinders daily activities, hinders children's learning and social concentration, and can even cause malnutrition due to loss of appetite due to difficulty chewing (Aprilia, et al., 2019).

Tooth decay is a dental disease that mainly occurs due to poor and improper dental care, which affects the growth and development of teeth in children. According to Wati and Mutiara (2021), tooth decay occurs because children often consume foods that cause tooth decay. The appearance of dental caries is characterized by many things including severe demineralization of dental tissue, and the destruction of organic substances that cause damage to the enamel and dentin parts, causing holes in the teeth (Soesilawati, 2020). Dental caries is an ongoing disease that collects in the hard tissues of the teeth including varnish, dentin, and dental veneers. If left without any treatment at all, the disease gets worse and can even spread (Zainur, 2019).

According to (Rehena, et al., 2020). tooth decay occurs due to two factors that affect dental caries, namely internal factors and external factors. There are 4 internal factors, namely the host (tooth), microorganisms (bacteria), cariogenic food and time. And there are 4 external factors as well, namely, gender, age, child knowledge, and tooth brushing.

METHODS

This study uses scientific and observational exploration using a cross-sectional design. Cross-sectional is a type of exploration in which the time span in estimating or observing information on independent and subordinate variables is only once at a time. The population taken from this study were all students at RA Al Fattah Gresik as many as 112 children and the number of samples was 88 children. In this study, the instrument or data collection tool used in this study used a questionnaire and observation sheet. The data that has been collected will be analyzed in 2 stages, namely descriptive and inferential analysis. In descriptive analysis using SPSS descriptive mean and mode tests. Furthermore, inferential analysis will use the Chi square test to see if there is a relationship between the independent and dependent variables. However, before the Chi Square test is carried out, a validity test is first carried out using the correlation method.

RESULTS AND DISCUSSION

Support for cariogenic food consumption with the incidence of dental caries in children at RA Al-Fattah Gresik

The results of the study showed that the majority of children consumed cariogenic foods

with a high level of 49 (55.7%), with a medium level of 34 (38.6%) and a low level of 5 (5.7%).

Table 1 Distribution of Respondents Based on Levels of Cariogenic Food Consumption in Children at RA Al - Fattah Gresik 2023.

No.	Level of cariogenic food	Frequency (n)	Percentage (%)
1.	High	49	55,7
2.	Currently	34	38,6
3.	Low	5	5,7
Total		88	100

Children's liking for sweet foods, such as snacks that contain a lot of sugar, is caused by high consumption of cariogenic foods. Bacteria convert sugar from sweet to sour, which can damage tooth enamel. Because teeth are sticky, food that damages teeth can stick to their surface (Fauzi, 2016).

The level of consumption of cariogenic foods can be assessed from the frequency of consumption of cariogenic foods. The most important factor influencing the frequency of consuming foods containing carbohydrates, which are found in sweet products. The more children consume sweet (cariogenic) foods, the greater the risk of tooth decay. (Pratiwi, 2009).

The incidence of dental caries among female students at RA Al-Fattah Gresik

The results of the study on 88 respondents showed that half of the students experienced dental caries, with 51 children (58.0%) having dental caries and 37 children (42.0%) not having dental caries.

Table 2 Distribution of Respondents Based on Dental Caries in Children at RA Al – Fattah Gresik 2023.

No	Dental caries	Frequency (n)	Presentation (%)
1.	There is dental caries	37	42,0 %
2.	No dental caries	51	58,0 %
Total		**88**	**100 %**

Dental caries in children is greatly influenced by soft and sticky cariogenic foods. Children are more likely to experience dental caries if they eat foods that contain a lot of glucose, such as candy, chocolate, cotton candy, marshmallows, milk, syrup, sponge cake, pudding, ice cream, and jam bread. (Muhajirin. A, 2018).

The results of this study showed that the prevalence of dental caries in children at RA Al-Fattah mostly had no dental caries, namely 51 (58%), and half of them had dental caries, 37 (42.0%).

The relationship between consumption of cariogenic foods and the incidence of dental caries in students at RA Al-Fattah Gresik

The results of the study that has been conducted on 88 respondents who experienced dental caries with consumption of cariogenic foods with a high consumption rate of 31 (63.3%), moderate consumption rates of 6 (17.6%), none of whom had dental caries with a low consumption rate of 0 (0.00%) and those who did not experience dental caries with consumption of cariogenic foods with a high consumption rate were almost half of 18 (36.7%), moderate consumption rates were almost all of 28 (82.4%) and all did not experience dental caries with a low consumption rate of 5 (100.0%). The results of the analysis with the Chi-Square test were obtained where P = 0.000 is smaller than a = 0.005, so there is a relationship between consumption of cariogenic foods and the incidence of dental caries in children at RA Al - Fattah Gresik.

Table 3 Cross Tabulation of the Relationship between Consumption of Cariogenic Foods and the Incidence of Dental Caries in RA Al-Fattah Gresik 2023.

Frequency of cariogenik foods	Dental Caries		Jumlah	*P-Value*
	There is	There isn't any		

	N	%	N	%	N	%	
Rendah	0	0,00	5	100,0	5	100,0	0,000
Sedang	6	17,6	28	82,4	34	100,0	
Tinggi	31	63,3	18	36,7	49	100,0	
Total	37	42,0	51	58,0	88	100,0	

The results of the study that has been conducted on 88 respondents who experienced dental caries with consumption of cariogenic foods with a high consumption rate of 31 (63.3%), moderate consumption rates of 6 (17.6%), none of whom had dental caries with a low consumption rate of 0 (0.00%) and those who did not experience dental caries with consumption of cariogenic foods with a high consumption rate were almost half of 18 (36.7%), moderate consumption rates were almost all of 28 (82.4%) and all did not experience dental caries with a low consumption rate of 5 (100.0%). The results of the analysis with the Chi-Square test were obtained where P = 0.000 is smaller than a = 0.005, so there is a relationship between consumption of cariogenic foods and the incidence of dental caries in children at RA Al - Fattah Gresik.

The results of the study also showed that some children consumed foods rich in cariogens but did not experience tooth decay. To maintain their dental health, these children are known to brush their teeth two to three times a day and undergo annual dental check-ups. 6 months and I eat high fiber foods like fruit. According to Tarigan, food has a big impact on the teeth and mouth. Foods such as apples, pears, water guava, jicama, and so on can clean teeth and reduce tooth decay (Tarigan, 2012).

Researchers assume This shows that there are many factors that can cause dental caries in children, so parents should be more careful in maintaining their children's dental health. Parents must teach children how to brush their teeth in the correct and appropriate way from childhood so that they get used to brushing their teeth until they grow up. They should also check their child's teeth every six months at the dentist.

CONCLUSION

Most of the students at RA Al-Fattah Gresik experienced tooth decay, namely 53 children with a percentage of 60.2%, Some children have a high level of cariogenic food consumption, as many as 49 children with a percentage of 55.7%, So the conclusion is that there is a relationship between the incidence of dental caries and the consumption of cariogenic foods at RA Al-Fattah Gresik

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