How to Cariogenic Food Habits in Children aged 9-10 Years? - Caries Severity Index (CSI)

by Eliati Sri Suharja

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ABSTRACT: Caries in children is higher than caries in adults. The factor that causes the high caries rate in children is the dietary factor. Cariogenic foods are foods that contain lots of carbohydrates, are sticky and break easily in the mouth. Objective: This study aims to determine the relationship between food of cariogenic to caries severity index (CSI) child of age 9-10 years. Methods: Type of Research is descriptive with device of cross sectional, date which is concerning free variables and the variable trussed will be collected during which at the same time. Subject of Research as much 65 children, have age 9-10 years old. instrument using Food of cariogenic measured by Dietary is Recall Method and for measurement hard; level of caries after conducted by inspection tooth and mouth measured to use caries severity index (CSI). The Result of statistical analyzes with Chi-square to know relationship between food of cariogenic to caries severity index (CSI). Results: The results of obtained by statistical test value of p-value p=0,000 according to statistics very have a meaning at storey; level of belief 95% by 0.05. Because p-value < 0.05 inferential hence there is relation between child consuming food of cariogenic hardly caries that happened at child of age 9-10 year. Result of obtained by statistical Analysis of value OR = 29,714 by 95% confidence of international 6,816-129.540 of its meaning that child. Conclusion: there is a significant relationship between cariogenic food habits and caries severity index (CSI) children of age 9-10 years

KEYWORDS: Cariogenic food, Children, Caries Severity Index (CSI).

I. INTRODUCTION

School children around the world 60-90% and almost 100% of adults experience dental caries, which often causes pain and discomfort. Basic Health Research data in 2013 showed an increase in the prevalence of active caries in the Indonesian population compared to 2007, from 43.4% (2007) to 53.3% (2013). Excess sugar consumption tends to lead to dental caries [1–3] The factors causing the high caries rate in elementary school-aged children are dietary factors and various foods such as ice cream, cakes, donuts and refined flour, chocolate, confectionery and others that are very liked by children. Elementary school age is a critical age for teeth and gingival growth. Children's eating habits tend to be rich in fat, cholesterol, refined sugar, and salt [4,5].

The type of cariogenic food that has the greatest influence on the plaque formation process is the type of carbohydrate, especially the type of sucrose. Cariogenic foods are often consumed by school-age children and do not immediately brush their teeth regularly will facilitate the occurrence of caries in these teeth [6,7].

Cariogenic foods are foods that can cause dental caries. The nature of cariogenic foods is that they contain lots of carbohydrates, are sticky and break easily in the mouth. Plaque will be formed from food residue that is attached to between the teeth and bacteria grow that convert glucose into acid so that the pH of the oral cavity decreases to 5.5, in this condition the structure of tooth enamel will dissolve or there will be demineralization of the enamel resulting in caries [8–10].

The results of the pre-study at SDN Sangkali grade II as many as 52 people showed that the caries prevalence reached 89.56%, while the 2010 National target for caries prevalence in elementary school-aged children at least 10 percent of children experienced caries. Based on the things above, the authors are interested in conducting research on the relationship of cariogenic foods to the caries severity index (CSI) of children aged 9-10 years.

II. METHOD AND MATERIAL

This type of research is descriptive correlational with cross sectional design, data concerning independent variables and dependent variables will be collected at the same time [11]. The research subjects were 65 children aged 9-10 years.

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Measurement of cariogenic food was measured using the Dietary Recall Method and for measuring the severity of caries after dental and oral examination was measured using the caries severity index (CSI).

The technique of taking research subjects was total sampling, all children aged 9-10 years. The data obtained directly are from the results of the CSI examination and interviews about diet surveys for 3 consecutive days in grades III and IV SDN Sangkali, Tamansari District, Tasikmalaya City. Analysis of the data used is the Chi-square to know relationship between food of cariogenic to caries severity index (CSI).

III. RESULT

Table 1. Univariate test results for cariogenic food habits

Variabel	N	Mean	SD	Min-Max	CI 95%	
					Lower	Upper
Cariogenic food habits	65	1.7077	0.45836	1.00-2,00	1.5941	1.8213

Table 1 shows that the results of the study on cariogenic food habits at the age of 9-10 years at SDN Sangkali from the number of respondents 65 people, the mean value of subjects with cariogenic eating habits was 1.7077, standard deviation 0.45836, min-max 1.00-2.00 and 95% significance value, the lower limit is 1.5941 and the upper limit is 1.8213.

Table 2. Univariate test results for caries severity index (CSI).

Variabel	N	Mean	SD	Min-Max	CI 95%	
					Lower	Upper
Caries severity index	65	52.0462	16.44444	23-80	47.9714	56.1209

Table 2 shows that the results of the Caries Severity Index (CSI) study aged 9-10 years from the number of respondents 65 people obtained an average CSI value of 52.0462, standard deviation of 16.44444, min-max 23-80 and a significance value of 95% the lower limit 47.9714 with an upper limit of 56.1209.

Table 3. Bivariate test results cariogenic food habits and caries severity index

Cariogenic food habits	Caries severity index				Total		OR 95 %CI	p value
	High		Low					
	n	%	n	%	n	%		
High	39	92.9	7	30.4	46	100		
Low	3	7,1	16	69.6	19	100	29.714	0.000
Total	42	64.6	23	35.4	65	100	6.816-129.540	

Table 3 shows that the results of the analysis between cariogenic food habits and the Caries Severity Index (CSI) showed that there were 39 people (92.9%) of children who consumed cariogenic foods with high frequency associated with caries severity tended to be high. Meanwhile, children who consumed low cariogenic foods were associated with low caries severity as many as 16 people (69.6%). The results of statistical tests obtained p value = 0.000 then there is a difference in the proportion of incidence of caries severity between children who eat cariogenic foods with a high frequency and children who eat cariogenic foods with low frequency, thus there is a close relationship between the consumption of cariogenic foods and the severity of caries. It can be concluded that there is a relationship between the consumption of cariogenic foods and the severity of caries in children aged 9-10 years. The results of statistical analysis obtained an OR value of 29 times which means that children who consume high cariogenic foods tend to have 29 times higher caries severity or Caries Severity Index scores compared to children who consume low cariogenic foods.

V. DISCUSION

The results of the measurement of cariogenic food consumption in children aged 9-10 years show that the criteria for children who often consume cariogenic foods with high criteria are 46 people (70.8%) and 19 people (29.2%) low carbohydrate consumption criteria. It is suspected that the results of a diet survey conducted 3 days in a row on students of SDN Sangkali grade III and IV on average often consume carbohydrates in the form of flour which are sticky and easily crumble in the mouth such as cakes, bread, ice cream, syrup, candy and sweetened condensed milk. This statement is supported by research by Giacaman who proved that in vitro experiments condensed milk caused more demineralization than powdered milk [12].

The results of the Caries Severity Index (CSI) measurement in children aged 9-10 years show that the criteria for children experiencing CSI caries severity are high criteria from 65 people as many as 42 people (64.6%) and low criteria only 23 people (35.4%).

The results of the analysis of cariogenic food habits at the age of 9-10 years at SDN Sangkali from the number of respondents 65 people, the average value (mean) of subjects consuming cariogenic food was 1.7077, standard deviation 0.45836, min-max 1.00 -2.00 and a significance value of 95%, the lower limit is 1.5941 and the upper limit is 1.8213. The results of the Caries Severity Index (CSI) study aged 9-10 years from the number of respondents 65 people obtained an average CSI value of 52.0462, standard deviation of 16.44444, min-max 23-80 and a significance value of 95% lower limit 47.9714 with an upper limit of 56.1209.

The results of statistical tests obtained p value = 0.000 then there is a difference in the proportion of incidence of caries severity between children who eat cariogenic foods with a high frequency and children who eat cariogenic foods with low frequency, thus there is a close relationship between the consumption of cariogenic foods and the severity of caries. It can be concluded that there is a relationship between the consumption of cariogenic foods and the severity of caries in children aged 9-10 years. with an OR value of 29 times, it means that children who consume high cariogenic foods tend to have 29 times higher caries severity or CSI scores compared to those who consume low cariogenic foods. This is supported by research by Talibo which states that there is a relationship between the consumption of sticky foods and the occurrence of dental caries [13]. Food residue in the oral cavity is not cleaned immediately, plaque will form on the tooth surface, gradually the enamel structure will dissolve. Overcoming the consumption of carbohydrates that often causes acid products by bacteria to become more frequent so that the pH of the oral cavity is up to 4.5 this will result in more dissolved enamel, so that dental caries occurs [14,15].

VI. CONCLUSIONS

Based on the results of the study, it can be concluded that there is relationship between cariogenic food habits and caries severity index (CSI) children of age 9-10 years

REFERENCES

1) Jurgensen N, Petersen PE. Promoting oral health of children through schools–Results from a WHO global survey 2012. Community Dent Heal 2013;30:204–18.
2) Kemenkes RI. Riset kesehatan dasar tahun 2013. Badan Penelitian Dan Pengembangan Kesehatan Kementrian Kesehatan RI 2013.
3) Van Loveren C, Broukal Z, Oganessian E. Functional foods/ingredients and dental caries. Eur J Nutr 2012;51:15–25.
4) Chankanka O, Marshall TA, Levy SM, Cavanaugh JE, Warren JJ, Broffitt B, et al. Mixed dentition cavitated caries incidence and dietary intake frequencies. Pediatr Dent 2011;33:233–40.
5) Tokunbo BC, Oluniyi OA, Adewole AM, Olayemi O. Snacking Habits of Secondary School Adolescents and Awareness of Their Effects on the Teeth. J Int Dent Med Res 2014;7:26.
6) Cooper AM, O'Malley LA, Elison SN, Armstrong R, Burnside G, Adair P, et al. Primary school-based behavioural interventions for preventing caries. Cochrane Database Syst Rev 2013.
7) Palacios C, Rivas-Tumanyan S, Morou-Bermúdez E, Colon AM, Torres RY, Elías-Boneta AR. Association between type, amount, and pattern of carbohydrate consumption with dental caries in 12-year-olds in Puerto Rico. Caries Res 2016;50:560–70.
8) Purkait SK. Essentials of oral pathology. JP Medical Ltd; 2011.
9) Gupta P, Gupta N, Pawar AP, Birajdar SS, Natt AS, Singh HP. Role of sugar and sugar substitutes in dental caries: a review. Int Sch Res Not 2013;2013.

10) Kidd EAM, Bechal SJ. Dasar-dasar Karies penyakit dan Penanggulangan. EGC, Jakarta, Hal 2013:98–118.

11) Notoatmodjo S. Metodologi penelitian kesehatan 2010.

12) Giacaman RA, Munoz MJ, Ccahuana-Vasquez RA, Munoz-Sandoval C, Cury JA. Effect of fluoridated milk on enamel and root dentin demineralization evaluated by a biofilm caries model. Caries Res 2012;46:460–6.

13) Talibo RS, Mulyadi N, Bataha Y. Hubungan Frekuensi Konsumsi Makanan Kariogenik Dan Kebiasaan Menggosok Gigi Dengan Kejadian Karies Gigi Pada Siswa Kelas III Sdn 1 & 2 Sonuo. J Keperawatan 2016;4.

14) Hiranya MP, Eliza H, Neneng N. Ilmu pencegahan penyakit jaringan keras dan jaringan pendukung gigi. Jakarta EGC 2011;104.

15) Tarigan R. Karies gigi. Jakarta EGC 2013.

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prevalence of dental caries among Egyptian children and adolescences and its association with age, socioeconomic status, dietary habits and other risk factors. A cross-sectional study", F1000Research, 2019
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