

Car Cariogenics Pattern Relationships And Habits Of Dental Basing With Teening Of Dental Caries On Children In SDN Kampung Dalem 6 Kediri City

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ABSTRACT

A primary school child is a vulnerable group dental and mouth disease because it still has a habit of lacking self support to dental health , and one of the dental diseases experienced by dental caries. The purpose of research to know dietary relationships and the habit of brushing teeth with the onset of dental caries in children at SDN Kampung Dalem 6 Kediri. Observational research design with cross sectional approach. Population of all children aged 7-8 years in SDN Kampung Dalem 6 Kediri City as many as 60 people, sampel as many as 60 respondents. Data collection with questioner and observation for 1 week then analyzed by Spearman test. The results showed almost half the respondents has a diet with sufficient category of 28 respondents (46.7%), almost half of respondents has Kabiasaan brushing teeth with enough category that is as much as 27 respondents (45%), half of respondents suffered dental caries type 3 that is enough 27 respondents (45%), and there is a relationship between eating patterns and the habit of brushing teeth with the onset of dental caries in children at SDN Kampung Dalem 6 Kediri (Spearman with p value = 0.0000 α 0.05). Diet and habits of a good brushing teeth properly will reduce the risk for developing dental caries due for wich good diet and good habits to brush their teeth properly can reduce exposure to the causative agent of dental caries.

Keywords: Diet, Dental Brushing, Dental caries

INTRODUCTION

Dental health problems in Indonesia still need attention (Aribowo, 2010). Dental caries is still one of the most common problems in Indonesia, not only in adults but also in children (Adhani, *et all.*, 2014). Elementary school children are a group that is vulnerable to dental and oral diseases because they still have personal habits that are not supportive of dental health. Including children who still like sweet foods or their diet still does not pay attention to food aspects that are at risk of dental caries, so the incidence of dental caries in children is still high (Aribowo, 2010).

Data shows that dental caries is one of the diseases suffered by children (6-8 years). Based on the Household Health Survey, the prevalence of caries in Indonesia reaches 90.05% and this is relatively higher than other developing countries (Dewi, 2015). Indeks *DM* - (*decayed, missing, filled teeth*) menggambarkan tingkat keparahan kerusakan gigi permanen, in Indonesia Indeks *DM* - Indonesia sebesar , dengan nilai masing - masing: $-$,; $M-T$ =,; $-$,; 8; yang berarti kerusakan gigi penduduk Indonesia 460 pieces gigi per 100 orang. In East Java Indeks *DM* - Indonesia sebesar 5.5 yang berarti kerusakan gigi penduduk East Java 550 pieces gigi per 100 orang (Risikesdas, 2013).

Based on data from the Kediri City Health Office which oversees 37 health centers in 2016, the prevalence rate of dental caries in children aged 6-8 years is 25,469 sufferers among



54,774 visits (46.5%). Based on data from the Kediri Northern Region City Health Center in 2016, the prevalence rate of dental caries in children aged 6-8 years was 602 patients among 1,491 visits (40.4%).

Based on a preliminary study at SDN Kampung Dalem Kediri on January 16, 2017, it was obtained from 60 students who experienced dental caries in 22 children, so that the prevalence of dental caries was 36.67%. The diet of children out of 60 children 32 children consumed sweet foods such as candy and chocolate almost every time (53.33%). When asked about how to brush their teeth, almost all children brush their teeth during morning and evening showers. In grade 1, 30 children (50%) brushed their teeth while bathing in the morning and evening, 14 children rarely brushed their teeth (23.33%) and 16 children brushed their teeth after eating and before going to bed (26.67%).

The main cause of caries is the process of demineralization (the formation of tartar) in the enamel. Other causes are lack of oral hygiene in the oral cavity, tooth anatomy, the location of the teeth in the curve and the use of tools such as orthodontics or *space maintainers*, socioeconomic level, education, nutrition, employment, geographical conditions and the environment (Aribowo, 2010). Caries is also related to oral hygiene (Adhani, *et all.*, 2014). In children, it is more due to lack of knowledge about maintaining dental and oral health, lack of knowledge of cariogenic foods such as candy, chocolate, dodol and others. Children lack understanding of cariogenic foods that can cause dental caries (Aribowo, 2010). The causes of caries in elementary school children are ice cream, flour cakes, chocolate and confectionery (Kusumaningsih & Rahardjo in Aribowo, 2010).

The impact of dental caries is that if not treated immediately, it can damage children's teeth and will affect general health. In addition, dental caries can also reduce the ability of children to gain weight (Adhani, *et all.*, 2014). Dental caries that do not get treatment quickly can cause swelling in the tooth area (Gunadi in Dewi, 2015).

Untuk mengatasi permasalahan di atas maka upaya pencegahan yang dilakukan dengan menyikat gigi minimal 2 kali sehari pagi dan malam (Aribowo, 2010). Penyuluhan untuk meningkatkan pengetahuan ibu dan anak terkait karies gigi dan membatasi konsumsi makanan kariogenik seperti permen, coklat, dodol, es krim, kue tepung halus, coklat dan kembang gula yang merupakan salah satu faktor penting untuk menurunkan prevalensi karies gigi (Aribowo, 2010). Hal ini disebabkan makanan kaya gula merupakan salah satu jenis karbohidrat utama yang dapat difermentasi dan bersifat kariogenik yaitu sebagai substrat bagi *Streptococcus mutans* dalam sintesis *glukan ekstraseluler* yang akan merubah matriks plak gigi sehingga tingkat keasaman (pH) lapisan plak gigi yang lebih dalam akan meningkat dan mengakibatkan karies (Aribowo, 2010). Menurut peneliti (Aribowo, 2010) yang paling efektif adalah membeikan informasi melalui media gambar atau vidio tentang pengaruh makanan kariogenik dengan kejadian karies gigi. Ibu perlu diberikan KIE (Komunikasi, Informasi dan Edukasi) mengenai konsumsi makanan kariogenik untuk anak sehingga menekan pemberian makanan kariogenik. Dianjurkan pula agar anak periksa gigi 6 bulan sekali ke puskesmas. Solusi untuk anak rutin menggosok gigi yang benar agar anak usia 7-8 tahun mengerti cara menggosok gigi agar terhindar dari karies gigi. Pihak sekolah mengadakan sikat gigi yang benar bekerjasama dengan tenaga kesehatan. Tujuan Penelitian ini adalah untuk mengetahui hubungan pola makan kariogenik dan kebiasaan menggosok gigi dengan timbulnya karies gigi pada anak di SDN Kampung Dalem 6 Kota Kediri.

METHOD

Pre-experimental research design with a *one-group pre-post test approach*. Respondents were taken using *the purposive sampling* technique. Population of all road users in Tinalan Village, Kediri City. The sample was 41 respondents. Independent variation of the

provision of *helath education*, dependent variables of knowledge and attitudes. The results were analyzed using *the wilcoxon* statistical test.

RESULT

Subject Characteristics

Table 1. The characteristics of the respondents in this study included age, gender, information about cariogenic foods, information about brushing teeth properly, cariogenic diet, brushing habits and the incidence of dental caries.

| It | Characteristic | ΣN | Σ% |
|-----------|--|-----------|------------|
| 1 | Age (year) | | |
| | 7 | 28 | 47 |
| | 8 | 32 | 53 |
| 2 | Gender | | |
| | Man | 24 | 40 |
| | Woman | 36 | 60 |
| 3 | Information about cariogenic foods | | |
| | Ever | 20 | 20 |
| | Never | 80 | 80 |
| 4 | Information about brushing your teeth | | |
| | Ever | 11 | 18 |
| | Never | 49 | 82 |
| 5 | Cariogenic diet | | |
| | Less | 20 | 33,3 |
| | Enough | 28 | 46,7 |
| | Good | 12 | 20 |
| 6 | Toothbrushing habits | | |
| | Less | 22 | 36,7 |
| | Enough | 27 | 45 |
| | Good | 11 | 18,3 |
| 7 | Incidence of dental caries | | |
| | Type 3 | 30 | 50 |
| | Type 2 | 18 | 30 |
| | Type 1 | 12 | 20 |
| | Total | 60 | 100 |

Based on table 1 above, it is known that out of a total of 60 respondents who are 8 years old, namely 32 respondents (53%) male gender, namely 36 respondents (60%) have never listened to information about cariogenic foods, namely 48 respondents (80%) had never listened to information about the correct way to brush their teeth, namely 49 respondents (82%) had a cariogenic diet with an adequate category, namely 28 respondents (46.7%), had a habit of brushing teeth with an adequate category, namely 27 respondents (45%) and experienced type 3 dental caries adequately, as many as 27 respondents (45%).

STATISTICAL TEST RESULTS

Table 2. The relationship between cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

| Variable | Sig. (2-tailed) | Correlation Coefficient |
|-----------------|------------------------|--------------------------------|
|-----------------|------------------------|--------------------------------|

The relationship between cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City 0,000 0,627

Based on the results of the statistical tests that have been carried out, it is known that the p -value = 0.000 with a *Correlation Coefficient* value of 0.627 so that H1 is accepted, which means that there is a strong relationship between the cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

Table 3. The relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

| Variable | Sig. (2-tailed) | Correlation Coefficient |
|---|-----------------|-------------------------|
| The relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City | 0,000 | .744 |

Based on the results of the statistical tests that have been carried out, it is known that the p -value = 0.000 with a *Correlation Coefficient* value of 0.744 so that H1 is accepted, which means that there is a strong relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

DISCUSSION

Carogenic diet in children at SDN Kampung Dalem 6, Kediri City.

Almost half of the respondents at SDN Kampung Dalem 6 Kediri City had a cariogenic diet with an adequate category, namely 28 respondents (46.7%) out of a total of 60 respondents. The cariogenic diet with the sufficient category in question is to consume a large amount of cariogenic foods and the types of foods consumed, such as chocolate, foods that contain a lot of carbohydrates, sweet foods and sweets (Pollan, 2008).

Based on the description of the facts and theories above, the researcher argues that respondents consume cariogenic foods in large quantities. They like sweet, soft, and sticky snacks such as chocolate, candy, bread, donuts, ice cream, and soft drinks. This is because this type of snack is widely sold around schools or around the home environment at affordable prices, attractive packaging, and can give a delicious and full taste so that children like it. In general, almost all children like sweet-tasting snacks such as chocolate, candy, ice cream, biscuits, *cakes*, chewing gum, and soft drinks including carbonated drinks and other *snacks* that are high in sucrose content between meals, even though this type of food is a very cariogenic carbohydrate and has the potential to cause caries. The high amount of cariogenic foods consumed will affect the dental health of respondents, because eating cariogenic foods is easily sticky so it is difficult to vent except by brushing your teeth properly and correctly. Therefore, parents need to limit their children from consuming cariogenic foods to maintain the health of children's teeth.

The habit of brushing teeth in children at SDN Kampung Dalem 6, Kediri City.

Almost half of the respondents at SDN Kampung Dalem 6 Kediri City had the habit of brushing their teeth with a sufficient category, namely 27 respondents (45%) out of a total of 60 respondents. Habits provide predictable patterns of behavior because they are often associated with hereditary customs. Because habits in general are inherent in a person, including habits that are not beneficial to health, it is difficult to change (Notoatmodjo S, 2010).

Based on the description of the facts and theories above, the researcher argues that there are still many students who have poor brushing habits, this can be seen from the results of the study which shows that only a small number of students have good and correct brushing habits, where there are still many respondents who do not change their toothbrushes every 4 months, many toothpastes are used that do not contain fluoride, children rarely brush their teeth every morning and night, brushing their teeth does not take 2-3 minutes, brushing the chewing plain does not start from the upper and lower jaw teeth are rubbed back and forth, and only a few respondents stated that the brush used by the child has soft bristles and a small toothbrush head, the chewing plain begins On the surface of the buccal with up-and-down motions, the comb is placed with vertical bristles, brushing teeth has the same direction as food.

The onset of dental caries in children at SDN Kampung Dalem 6, Kediri City

Half of the respondents at SDN Kampung Dalem 6, Kediri City, experienced type 3 dental caries, which was 27 respondents (45%) out of a total of 60 respondents. One of the components that affects the formation of caries is plaque caused by food debris, if left unchecked, the plaque on the edge of the tooth will harden and over time will damage the tooth. Dental caries can cause cavities because sucrose found in food causes the growth and development of streptococcus mutans, so that teeth are easily brittle (Irma, 2013). According to Chemiawan (2008) there are three main factors that play a role in the cause of dental caries, namely the host factor, the agent or microorganism, the substrate or diet and the time factor.

Based on the above description of facts and theories, researchers argue that most students experience moderate dental caries where caries occurs on more than two surfaces of the anterior teeth of the upper jaw and is not present in posterior teeth and mild where caries occurs on two surfaces of the anterior teeth of the upper jaw and is not present on the surface of the posterior teeth. However, there are also some students who experience dental caries that have advanced to the advanced stage, namely caries occurs on two or more surfaces of the anterior teeth of the upper jaw suffering from caries and it is found that one or more posterior teeth suffer from caries, this is because they have experienced dental caries for a long time. In respondents who experience type III dental caries, it will continue to type IV if dental care is not carried out properly and correctly and still consume a lot of cariogenic foods, therefore it must be considered so that children can stay away from the factors that cause dental caries and can maintain dental hygiene in order to improve dental and oral health.

The relationship between cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

Based on the results of the statistical tests that have been carried out, it is known that *the p-value* = 0.000 with a *Correlation Coefficient* value of 0.627 so that H1 is accepted, which means that there is a strong relationship between the cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

The frequency of consuming cariogenic snacks is the number of times the subject eats sugary foods that can cause caries outside of the main meal hours such as breakfast, lunch, and dinner. According to Stephen and Joya (2007) quoted by Drinkard Carol (2009) in their research that more and more frequent individuals consuming foods containing carbohydrates and sugar between meals can cause caries.

Researchers argue that the incidence of dental caries in students is related to the cariogenic diet of students of SDN Kampung Dalem 6 Kota Kediri, this is because a bad cariogenic diet, especially consuming a lot of cariogenic foods, can cause the adhesion of food residues to the teeth so that it causes the proliferation of bacteria that affect the decrease in plaque pH below normal and the demineralization of enamel which will take longer to cause the occurrence of caries in children's teeth. The results of this study also show data that there are

several respondents with a good cariogenic diet but still experience dental caries types I, II, and III, this is because children have poor brushing habits so that they cause the ingestion of cariogenic foods which will gradually become more and cause dental caries, and there are several other factors that can cause dental caries such as chemical factors, flour and hosts who are susceptible to developing dental caries due to heredity.

The relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

Based on the results of the statistical tests that have been carried out, it is known that *the p-value* = 0.000 with a *Correlation Coefficient* value of 0.744 so that H1 is accepted, which means that there is a strong relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City. Dental caries is a tooth is a pathological process that occurs in the hard tissues of the teeth and can extend to other parts of the tooth. Toothbrushing behavior affects the occurrence of caries. This is related to the process of caries itself, where if sucrose stays in the mouth for a long time and is not cleaned immediately, it will cause the possibility of caries (Sariningsih, 2012).

Based on the description of the facts and theories above, researchers argue that the incidence of caries in students is related to poor brushing habits of children's teeth. The lack of children's ability to brush their teeth in a good and correct way is caused by the lack of knowledge about how to brush their teeth properly and correctly which is influenced by the lack of information exposure and lack of parental guidance and parents do not give a good and correct example to their children. This if it continues can cause the accumulation of food residues between the children's teeth, especially in the lower teeth, and if this continues to cause the accumulation of food debris that will cause dental caries. The results of this study show that the better the habit of brushing a child's teeth, the less risk the child will experience dental caries.

CONCLUSION

1. Almost half of the respondents at SDN Kampung Dalem 6 Kediri City had a diet with an adequate category, namely 28 respondents (46.7%) out of a total of 60 respondents.
2. Almost half of the respondents at SDN Kampung Dalem 6 Kediri City had the habit of brushing their teeth with a sufficient category, namely 27 respondents (45%) out of a total of 60 respondents.
3. Half of the respondents at SDN Kampung Dalem 6 Kediri City experienced type 3 dental caries, which was 27 respondents (45%) out of a total of 60 respondents.
4. There is a relationship between cariogenic diet and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.
5. There is a relationship between the habit of brushing teeth and the onset of dental caries in children at SDN Kampung Dalem 6, Kediri City.

For the sake of the perfection of this study, the researcher is expected to be able to conduct further research by examining other factors that can affect the incidence of dental caries in children such as age and gender factors.

REFERENCES

- Adhani, Rosihan, Nadya Novia Sari dan Didit Aspriyanto. 2014. *Nursing Mouth Caries Anak 2-5 Tahun di Puskesmas Cempaka Banjarmasin (Nursing mouth caries children 2-5 years old in Puskesmas Cempaka Banjarmasin)*. Banjarmasin : Program Studi Kedokteran Gigi Fakultas Kedokteran Universitas Lambung Mangkurat Banjarmasin – Indonesia
- Aribowo. 2010. *Pengaruh Tingkat Pengetahuan tentang Makanan Kariogenik terhadap Karies Gigi pada Siswa Kelas IV SDN 1 Sumberagung dan SDN Bantul Timur*. Surakarta : Fakultas Kedokteran Universitas Sebelas Maret Surakarta
- Danim dan Darwis. 2008. *Metode Penelitian Kebidanan (Prosedur, Kebijakan dan Etik)*. Jakarta : EGC
- Depdiknas. 2007. *Kamus Besar Bahasa Indonesia*. Jakarta : Balai Pustaka.
- Depkes RI. 2009. *Aspek Gizi Makan Jajanan*. Dirjen Binkesmas 2009.
- Dewi, Dian Pranyata. 2015. *Hubungan antara Tingkat Pendidikan Ibu dan Pola Asuh Gizi Dengan Kejadian Karies Gigi pada Anak Balita di Desa Mranggen Sukoharjo*. Surakarta : Program Studi Ilmu Gizi Jenjang S1 Fakultas Ilmu Kesehatan Universitas Muhammadiyah Surakarta
- Emery. 2014. *Makanan Kariogenik Penyebab Karies Gigi*. <http://ber-untung.co.id>
- Kidd and Bechal. 2012. *Dasar-Dasar Karies, Penyakit dan Penanggulangannya*. Jakarta : Penerbit Buku Kedokteran EGC.
- Muhammaddimas. 2016. *Satpel Makanan Kariogenik*. Semarang : Jurusan Keperawatan Gigi Poltekkes Kemenkes Semarang
- Notoatmodjo, S. 2010. *Pendidikan dan Perilaku Kesehatan*. Jakarta : Rineka Cipta.
- Notoatmodjo, S. 2010. *Metodologi Penelitian Perilaku Kesehatan*. Jakarta : Rineka Cipta.
- Sudarso. 2007. *Membuat Karya Tulis Ilmiah Bidang Kesehatan dengan Penjelasan Dasar Metodologi Penelitian dan Disain Penelitian Kesehatan Cet I*. Surabaya : DUATUJUH
- Suhardjo. 2013. *Sosio Budaya Gizi*. Departemen Pendidikan dan Kebudayaan. Direktorat Jenderal Pendidikan Tinggi Pusat antar Universitas Pangan dan Gizi. Bogor: IPB.
- Tarigan. 2015. *Karies Gigi*. Jakarta : Penerbit Hipokrates