Jurnal Mitra Rafflesia Volume 14 Nomor 2
Juli-Desember 2022

CORRELATION BETWEEN CARIES AND STUNTING INCIDENCE AMONG CHILDREN IN BANJARMASIN ELEMENTARY SCHOOL

Ika Kusuma Wardani, Renie Kumala Dewi, Erika Norfitriah

Universitas Lambung Mangkurat
Email : *ika.wardani@ulm.ac.id*

ABSTRACT

Background: Dental caries makes children experience loss of chewing power and digestive disorders which result in less than optimal growth or stunting.
Purpose: The purpose of this study was to determine the correlation between dental caries status and stunting among children in Mantuil 3 Elementary School Banjarmasin.
Methods: This is a correlational study with a cross-sectional approach. Data collection was conducted in Februari 2022 and 40 children participated. The data analysis was performed to analyze for frequency distribution and the Spearman correlation test was used to measure the strength of the correlation between variables.
Results: It was reported that most of the respondents who get stunting incidence, as many as 22 child (55%) were male. Most of the respondents experienced caries, as many as 30 child (75%). Based on the results of the Spearman correlation test, the value of Sig. 0.036 < 0.05 was obtained. Furthermore, the direction of the positive relationship can be seen from the sign of the coefficient correlation of 0.332, which means that the low relationship between caries and stunting.
Conclusions: These results are expected to be the basic data for future research about caries and stunting. This can reduce the impact of the caries and stunting incidence.
Keywords: Dental caries, Stunting, Child dental health, Caries status

PENDAHULUAN

Dental and oral health is important, especially for child development. Dental caries is one of the dental health problems. Based on the results of the 2018 Basic Health Research (RISKESDAS) that the prevalence of caries in Indonesia is very high, namely 88.8%, meaning that only 12% of Indonesian people are free of caries (Rahma,2020). Caries is a disease in the oral cavity resulting from the interaction of bacteria that convert carbohydrates in food into acid through the fermentation process. Caries is caused by many factors such as the host (teeth), microorganisms (bacteria), substrate (carbohydrates), and time. Dental caries is formed because there is food residue attached to the teeth which causes calcification of the teeth. As a result, the teeth become porous, perforated, and even broken. Dental caries makes children experience loss of chewing power and digestive disorders which result in less than optimal growth or stunting (Widayati, 2014).

Stunting is a chronic malnutrition problem caused by lack of nutritional intake for a long time, resulting in growth disorders in children, namely the child's height is lower or shorter (short) than the standard age. The results of the 2013 Basic Health Research, the prevalence of stunting in Indonesia reached 37.2%. Based on the 2016 Nutrition Monitoring, it reached 27.5%, while the WHO gave a limit for stunting <20%. This shows that approximately 8.9 million children in Indonesia experience suboptimal growth or 1 in 3 children experience stunting (Laili, 2019). Data on the prevalence of stunting children collected by the World Health Organization (WHO) released in 2019

states that the South East Asia region is still the region with the highest prevalence of stunting (31.9%) in the world after Africa (33.1%). Indonesia is included in the sixth country in the South-East Asia region after Bhutan, Timor Leste, Maldives, Bangladesh, and India, which is 36.4% (Nirmalasari, 2021).

Based on data from the 2018 Basic Health Research (Riskesdas), the stunting rate in Indonesia is 30.8%. This figure is still relatively high compared to the target of the National Medium-Term Development Plan (RPJMN) of 19% in 2024. Stunting has the highest prevalence compared to other nutritional problems such as undernutrition, thinness, and obesity. Stunting can occur due to several factors, one of which is caries, because children can experience malnutrition due to difficulty eating as a result of their teeth being damaged (Asriawal, 2020; Ginting, 2019; Mitra, 2015)

The impact of stunting on children's health and development is very detrimental. Stunting can caused developmental disorders in children, especially in children under two years of age. Children who experience stunting in general will experience obstacles in their cognitive and motor development which will affect their productivity as adults. In addition, stunting children also have a greater risk of suffering from non-communicable diseases such as diabetes, obesity, and heart disease as adults. In economic sector, this will certainly be a burden for the country. The potential for economic losses caused by stunting is very large (Haskas, 2020).

Based on the preliminary study, it was found that most of the children with caries were at SD Mantuil 3. Therefore, it is important to conduct research the relationship between caries and stunting incidence among children in Banjarmasin elementary school.

METODE PENELITIAN

This study used an analytical survey method with a cross-sectional approach by observing events related to stunting and dental and oral health. The intervention carried out was DMF-T examination through screening with a flashlight remotely, while stunting status was grouped based on secondary data. This research was conducted at the Mantuil 3 Elementary School on Banjarmasin. The population in this study were students at SDN Mantuil 3 Banjarmasin who get stunting as the inclusion criteria. While the exclusion category is children who are not willing to be examined until the end. The sample in this study was 40 who were determined using a purposive sampling technique because the sampling mechanism was determined only on subjects who get stunting. In this study using the DMF-T instrument and informed consent.

HASIL

Tabel 1 Table of Sample Characteristics by Gender

Gender	Total	Persentase
Male	22	55%
Female	18	45%
Total	40	100

Based on the result, most of the respondents who get stunting, as many as 22 people (55%) were male. Based on the results of the study, it was found that the caries status of the respondents can be explained in the following table:

Table 2. Table of Caries Status Examination Results in Samples

Caries Status	Total	Persentase
Caries	30	75%
No Caries	10	25%
Total	40	100%

Most of the respondents experienced caries, 30 people (75%).

Table 3. Table of Results of Stunting Status

Stunting status	Total	Persentase
Short	29	72,5%
Very short	11	27,5%
Total	40	100%

Based on the table on the results of the nutritional status of children, it was found that most of the children were in the short category, as many as 29 child (72.5%).

Table 4. Results cross tab and Statistical Analysis of Caries Status and Stunting

Caries Status / Stunting Status	Caries		No caries		P value
Short	19	47,5%	10	25%	0,036
Very short	11	27,5%	0	0	

Based on the table, it was found that most of the respondents with caries were 19 people (47.5%) with short nutritional status. Based on the results of the Spearman correlation test, the value of Sig. 0.036 < 0.05 was obtained. Furthermore, the direction of the positive relationship can be seen from the sign of the coefficient correlation of 0.332, which means that the low relationship between caries and stunting.

PEMBAHANSAN

Caries is a disease of the hard tissues of the teeth that begins with the process of demineralization of the hard tissues of the teeth followed by the destruction of dental organic matter (Lintang JC, 2015). Caries can penetrate tooth enamel, but there are no symptoms. But if it reaches the dentin layer, you will usually feel a sense of pain. This caries formation process will continue to get bigger and deeper. This large tooth hole will be the entrance for bacteria in the oral cavity to infect the pulp tissue of the tooth which will cause throbbing pain to the head, as well as when the tooth is exposed to cold, hot, sweet and sour foods (Listrianah, 2018). In the early stages of dental caries, although it does not cause complaints, it must be treated immediately, because the first caries spread occurs in the enamel. If not cleaned immediately and not immediately filled with caries, caries will spread to the dentin layer to reach the pulp chamber which contains nerves and blood vessels, causing pain and eventually the tooth can die (Listrianah, 2018).

At an advanced stage, in addition to causing quite disturbing complaints, if left untreated, the caries process will continue so that it will damage the dental pulp/nerve tissue. At this stage can be accompanied by the emergence of bad breath (halitosis) so that it interferes with the association. If the cavity is too deep and causes the pulp to become infected, over time the pulp will die. These bacteria will continue to infect the tissue under the teeth and cause apical periodontitis, which is inflammation of the

periodontal tissue around the tip of the tooth root. If not treated, the condition will get worse until a periapical abscess is formed (pus formation in the area of the apex of the tooth or in the area of the root tip), granulomas, to dental cysts (Listrianah, 2018).

The condition of good dental health status does not complicate the process of chewing food, because the teeth play an important role, so that the intake of nutrients takes place better, according to the body's needs. Dental caries causes disruption of masticatory function which can affect food intake and nutritional status. Sick teeth will affect nutritional status through the mechanism of disruption of masticatory function. Children with dental caries will have impaired masticatory function, so that it will affect their nutrient intake and nutritional status. Most school children really like sweet, soft, sticky (cariogenic) foods and foods that look attractive (Rohmawati, 2017).

According to research (Ratnasari, 2014), the effect of dental caries on children can cause disturbances in the digestive process and difficulty eating which causes impaired growth and development of children. The results of the study said that there was a relationship between dental caries and the nutritional status of elementary school children. The incidence of infection that causes decreased appetite is associated with the occurrence of dental caries. The result of dental caries will cause pain in the respondent, namely in the form of spontaneous pain or due to the stimulation of the mechanism of the food itself, which in turn will interfere with the masticatory function. Disruption of the masticatory function will affect the nutritional intake of respondents and affect their nutritional status. If the nutritional status is disturbed, it will have something to do with the occurrence of stunting (Abdat, 2019).

Stunting is basically the result of chronic nutritional deficiency that inhibits linear growth. Usually faltering growth begins at around six months of age, as a child's diet transitions which are often inadequate in quantity and quality and increased exposure to the environment increases disease susceptibility. Short nutritional status (stunting) occurs due to chronic malnutrition, the causes of which include infectious diseases that have been suffered for a long time. The incidence of infection causes a decrease in appetite, which can be associated with the occurrence of dental caries. As a result of dental caries, of course, it causes pain in respondents, which in turn will interfere with masticatory function and affect their nutritional status (Abdat, 2019).

Impaired growth of toddlers and children due to inadequate food intake and the occurrence of recurrent infectious diseases, which results in reduced appetite and increased metabolic needs. Dental caries is known to be one of the factors causing stunting because when a child has dental caries, the child will reduce their food consumption for a long time and will have an impact on the child's nutritional status which is less so that stunting occurs (Asriawal, 2020).

Short toddler (stunting) is a nutritional status based on the PB/U index or TB/U where in the anthropometric standard for assessing children's nutritional status, the measurement results are at the threshold (Z-Score) <-2 SD to -3 SD (short/stunted) and <-3 SD (very short/severely stunted). Stunting is also defined as a chronic malnutrition problem caused by inadequate nutritional intake for a long time due to feeding that is not in accordance with nutritional needs. Stunting can occur from the time the fetus is still in the womb and only appears when the child is two years old (Rahmadhita, 2020). Children who are categorized as stunting generally have less height. The measurement of stunting is obtained from measuring the height of the child against his age, if the child has a Z-score of height for an age that is less than (-2) then it is

classified as stunting (Asriawal, 2020; Zukhra, 2021).

Stunting can be caused by various factors such as maternal, child, and environmental factors. The incidence of stunting increases in conditions of maternal age during pregnancy <20 or 35 years, maternal upper arm circumference during pregnancy ≥23.5 cm, pregnancy in adolescence, and low maternal height. This continues when the mother has given birth related to breast milk or solid food. Early initiation of breastfeeding that was not carried out, exclusive breastfeeding that was not carried out, early complementary feeding before the age of 6 months, and poor food quality related to energy, protein, calcium, iron, and zinc intake were found to increase the risk of stunting (Nirmalasari, 2021).

Furthermore, the child's growth and development can be disrupted and may experience stunting if there is a history of low birth weight (LBW) or premature birth, the child is male, has a history of neonatal disease, a history of frequent and recurrent diarrhea, a history of infectious diseases, and the child does not received immunizations (Nirmalasari, 2021).

The environment also plays a role in causing stunting. Some of them are low socioeconomic status, poor family education, especially mothers, less family income, open defecation habits such as rivers or gardens or inadequate latrines, untreated drinking water, and high exposure to pesticides (Nirmalasari, 2021).

KESIMPULAN

These results are expected to be the basic data for future research about caries and stunting. This can reduce the impact of the caries and stunting incidence.

DAFTAR PUSTAKA

Abdat, M. (2019). Stunting Pada Balita Dipengaruhi Kesehatan Gigi Geliginya. Journal of Syiah Kuala Dentistry Society, 4(2), 36–40.

Asriawal, J. (2020). Hubungan Tingkat Karies Gigi Anak Pra Sekolah Terhadap Stunting Di Taman Kanak-kanak Oriza Sativa Kecamatan Lau Kabupaten Maros. Media Kesehatan Gigi: Politeknik Kesehatan Makassar, 19(1).

Ginting, K. P., & Pandiangan, A. (2019). Tingkat Kecerdasan Intelegensi Anak Stunting. Jurnal Penelitian Perawat Profesional, 1(1), 47–52.

Haskas, Y. (2020). Gambaran Stunting Di Indonesia: Literatur Review. Jurnal Ilmiah Kesehatan Diagnosis, 15(2), 154–157.

Laili, U. and Andriani, R. A. D. (2019). Pemberdayaan Masyarakat Dalam Pencegahan Stunting. Jurnal Pengabdian Masyarakat IPTEKS, 5(1), 8–12.

Lintang JC, Palandeng H, L. M. (2015). Hubungan Tingkat Pengetahuan Pemeliharaan Kesehatan Gigi dan Tingkat Keparahan Karies Gigi Siswa SDN Tumaluntung Minahasa Utara. Jurnal E-GiGi (EG), 3(2), 567–572.

Listrianah, L., Zainur, R.A. and Hisata, L. S. (2018). Gambaran Karies Gigi Molar Pertama Permanen Pada Siswa–Siswi Sekolah Dasar Negeri 13 Palembang Tahun 2018. JPP (Jurnal Kesehatan Poltekkes Palembang), 13(2), 136–149.

Mitra. (2015). Permasalahan Anak Pendek (Stunting) dan Intervensi untuk Mencegah Terjadinya Stunting (Suatu Kajian Kepustakaan). Junal Kesehatan Komunitas, 2(6), 254–261.

Nirmalasari, N. O. (2021). Stunting Pada Anak: Penyebab Dan Faktor Risiko Stunting Di Indonesia. Qawwam, 14(1), 19–28.

Rahma, D. N., Mulyanti, S., D. (2020). Gambaran Angka Kejadian Karies Pada Anak Sekolah Dasar Di Kota Manado Bali Palembang.

Rahmadhita, K. (2020). Permasalahan Stunting dan Pencegahannya. Jurnal Ilmiah Kesehatan Sandi Husada, 9(1), 225–229.

Ratnasari, E Gultom, A. D. (2014). Tingkat Keparahan Karies dan Status Gizi pada Anak Sekolah Usia 7 – 8 Tahun. Jurnal Keperawatan, 10(1), 33–37.

Rohmawati, N. (2017). Karies gigi dan status gizi anak. STOMATOGNATIC- Jurnal Kedokteran Gigi, 13(1), 32–36.

Widayati, N. (2014). Faktor yang Berhubungan Dengan Karies Gigi Pada Anak Usia 4-6 Tahun. Jurnal Berkala Epidemiologi, 2(2), 196–205.

Zukhra, R. M., & Ardian, R. (2021). Stunting Dan Gizi Kurang Dengan Skor Iq Anak Sekolah Dasar Umur 8 Tahun. In Seminar Nasional Kesehatan Abdurrab Dan Seminar Hasil Penelitian., 71–77.