

The Development of the Impact of Early Childhood Caries on the Quality of Life of Children aged 3-5 Years at Paedodonti RSGM Baiturrahmah

Sri Pandu Utami, Febri liza, Hamdy Lisfrizal

Department of Pediatric Dentistry, Faculty of Dentistry, Baiturrahmah University

Online submission : 23 Februari 2021

Accept Submission : 02 Maret 2021

ABSTRACT

Background: The improvement of oral health should be started as early as possible, because in toddlers and preschool children is an important factor for further regulation. dentition. In addition, it also affects the children's ability to speak and their mastery. Efforts to develop the prevention and management of dental caries continue in many countries. Currently, the prevention and management of dental caries has shown positive and dynamic aspects. However, the problem of dental caries still shows a high prevalence, especially in developing countries. **Objective:** The aim of this study was to determine the impact of early childhood caries on quality of life children aged 3 - 5 years based on characteristics in pedodontics, RSGM Baiturrahmah. **Methods:** The purpose of this study was to determine the impact of early childhood caries on the quality of life of children aged 3-5 years based on the characteristics of the pedodontics in Baiturrahmah Hospital. This type of research is quantitative with validity and reliability testing followed by quantitative methods with cross sectional research design. The population was pediatric patients who visited Paedodonti RSGM Baiturrahmah from January to February 2020. Sampling in this study used a total sampling method. In this research, Data collection was carried out by means of researchers giving questionnaires to respondents through the Google Form application. The research was conducted by using a questionnaire or questionnaire method, it is necessary to test the validity. Test the Pearson correlation using the product moment the principle of correlating or linking between each item score or question with the total score obtained from the respondent's answer or questionnaire. **Results:** Based on the "correlations" output, it is known that the calculated r value (Pearson correlation value for all of question with total score is > 0,218). all of question is valid. **Conclusion:** the conclusion of this study caries has an impact on early childhood development on the quality of life of children aged 3-5 years in paedodontics RSGM Baiturrahmah.

Keywords: Caries impact, caries impact assessment, quality of life.

Correspondence: Sri Pandu Utami, Department of Pediatric Dentistry, Faculty of Dentistry, Baiturrahmah University, Jl. Raya By Pass KM 14, Kuranji, Padang City, West Sumatra. Email: panduutamidrg@yahoo.co.id



INTRODUCTION

The improvement of dental and oral health should be started as early as possible, because in toddlers and preschool children is an important factor for further regulation. dentition. Apart from that, it also affects the children's ability to speak and their mastery. Efforts to develop the prevention and management of dental caries continue in many countries. Currently, prevention and The management of dental caries has shown positive and dynamic aspects. However, the problem of dental caries still shows a high prevalence, especially in developing countries ¹.

The health condition of teeth and mouth in Indonesia is still very worrying, 90% of the Indonesian population still suffers from dental and oral diseases. Dental caries and periodontal disease are the most common diseases in the oral cavity so this disease is a major problem of dental and oral health ².

Oral health is important for general health and quality of life. Oral health means free of throat cancer, infections and sores in the mouth, gum disease, tooth decay, tooth loss, and other diseases, resulting in limiting disturbances in biting, chewing, smiling, speaking, and psychosocial well-being ³.

Nearly 90% of school-aged children worldwide suffer from dental caries. Meanwhile, according to the Centers of Control Disease Prevention, dental caries is a chronic disease that often occurs in children aged 6-11 years (25%) and adolescents aged 12-19 years (59%) even though dental caries is a preventable disease. Furthermore, according to the Indonesian Ministry of Health, children under the age of 12 in Indonesia suffer from dental caries as much as 89% ⁴.

Improving the quality of life is one of the goals in establishing a health care system in accordance with World Health Organization policies. The dental caries prevention and management plan concerns not only the clinical impact, but also the assessment and measurement of the impact on quality of life. As

life patterns continue to develop, chronic oral and dental problems and develop symptoms and some of the effects caused by these problems require a chronic social and psychological impact assessment method ⁵.

The concept of early prevention has not been facilitated by the development of an instrument for assessing the quality of life of children related to oral health, especially for children under 5 years of age compared to the development of instruments for older children. The area was selected because those under 5 years of age have special characteristics, that is, considering the psychological development status of early childhood, they still cannot interpret the questions of the quality of life assessment instrument. Because of that, parents are considered more effective at solving assessment of the quality of life of their children ⁶.

Dental caries is one of the oral diseases that most often occurs in children. Children are very susceptible to caries because of the anatomical structure of the teeth and the early eruption time. Caries is progressive and its prevalence increases with age in each population. This is associated with a longer exposure time to the etiological factors of caries ⁷.

Advanced caries can affect the health and quality of life of a person causing pain, difficulty sleeping and eating, decreased body mass index, school absence and hospitalization and the costs incurred for treatment of severe caries are higher than in the initial case of lesions. Bad oral conditions, for example the number of missing teeth as a result of damaged teeth or untreated trauma, will interfere with the function and activity of the oral cavity so that this also affects the development of children which has an impact on quality of life ⁸.

Dental caries is a disease caused by many factors. The factors causing caries are the host (teeth and saliva), microorganisms (plaque), substrate (carbohydrates) and added time factor). In addition, other predisposing factors that contribute to caries severity include

caries experience, socioeconomic, age, gender, geography, and behavior towards dental health⁹.

MATERIALS AND METHODS

This type of research is quantitative with validity and reliability testing followed by quantitative methods with cross sectional research design. The population was pediatric patients aged 3-5 years visited Paedodonti RSGM Baiturrahmah from January to February 2020.

Sampling Method

The sampling technique used was total sampling technique. With the research object of patients visited aged 3-5 years Paedodonti RSGM Baiturrahmah from January to February 2020 through distributing questionnaires via google form.

Research procedure

Ethic consent. Licensing for Baiturrahmah Hospital. Subjects signed informed consent. Subjects are given a questionnaire that asks questions related to this research, as for the types of questions asked can be seen in the questionnaire (attached). The questionnaires that have been filled in by the subject are collected, then data are grouped, data processing and analyzed with SPSS. The Pearson correlation using the product moment the principle of correlating or linking between each item score or question with the total score obtained from the respondent's answer or questionnaire.

RESULTS

The development of the impact of early childhood caries on the quality of life of children aged 3-5 years at the Baiturrahmah Hospital which was measured using a questionnaire to 60 respondents at the Baiturrahmah Hospital with the following descriptions:

Table 1. Frequency Distribution of Children Ever Fussy / Anxious

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not	26	37.1	43.3	43.3
	Yes	34	48.6	56.7	100.0
	Total	60	85.7	100.0	

Based on table 1, the results obtained from 60 respondents showed that 26 respondents (43.3%) had children who did not have ever been fussy / anxious and as many as 34 respondents (56.7%) had children who were fussy / restless.

Table 2. Frequency Distribution of Children Feeling Uneasy at Eating and Mimicking

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not	30	42.9	50.0	50.0
	Yes	30	42.9	50.0	100.0
	Total	60	85.7	100.0	

Based on table 2, the results obtained from 60 respondents obtained that 30 respondents (50.0%) had children with feelings comfortable when eating and drinking and as many as 30 respondents (50.0%) felt uncomfortable when eating and drinking.

Table 3. Frequency Distribution of Children Never Attending School

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not	19	27.1	31.7	31.7
	Yes	41	58.6	68.3	100.0
	Total	60	85.7	100.0	

Based on table 3, the results obtained from 60 respondents obtained that 19 respondents (31.7%) had children always attend school and as many as 41 respondents (68.3%) have children who have never attended school.

Table 4. Frequency Distribution of Children Having Difficulty Sleeping

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not	26	37.1	43.3	43.3
	Yes	34	48.6	56.7	100.0
Total		60	60	85.7	100.0

Based on table 4.4, the results obtained from 60 respondents, it was found that 26 respondents (43.3%) had no children had difficulty sleeping and as many as 34 respondents (56.7%) had children who had experienced difficulty sleeping.

Table 5. Frequency Distribution of Monthly Household Expenditures

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<1,500,000	5	7.1	8.3	8.3
	> 1,500,000	55	78.6	91.7	100.0
Total		60	85.7	100.0	

Based on table 5, the results obtained from 60 respondents obtained that 5 respondents (8.3%) have a small monthly household expenditure of 1,500,000 and as much 55 respondents (91.7%) had a large monthly household expenditure of 1,500,000.

Table 6. Frequency Distribution of Number of Children Living at Home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2	23	32.9	38.3	38.3
	> 2	37	52.9	61.7	100.0
Total		60	85.7	100.0	

Based on table 6, the results obtained from 60 respondents obtained that 23 respondents (38.3%) had the number of children less than 2 people and as many as 37 respondents (61.7%) have children more than 2 people.

Table 7. Frequency Distribution of Characteristics of the Impact of Dental Caries Assessment on Quality of Life of Aged Children 3-5

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10	14.3	14.3	14.3
Good	9	12.9	12.9	27.1
Less	51	72.9	72.9	100.0
Total	70	100.0	100.0	

Based on table 7, the results obtained from 60 respondents were obtained as many as 9 respondents (12.9%) who have a good quality of life criteria, and as many as 51 respondents (72.9%) have poor quality of life criteria. The results of the study in table 4.7 show the quality of life of the respondent which influences the

respondent, namely the development of the impact of dental caries on the quality of life of children aged 3-5 years at Baiturrahmah Hospital.

The correlations test is carried out to find out how well an instrument can measure the concept it should be.

Table 8. Correlations Test

Variabel	Question	Valid	Corrected Item-Total Correlation	
Quality of Life	Children Ever Fussy / Anxious	0,218	0,816	Valid
	Children Feeling Uneasy at Eating and Mimicking	0,218	0.752	Valid
	Children Never Attending School	0,218	0.787	Valid
	Children Having Difficulty Sleeping	0,218	0.670	Valid
	Monthly Household Expenditures	0,218	0.301	Valid
	Number of Children Living at Home	0,218	0,273	Valid

The correlations test is carried out to find out how well an instrument can measure the concept it should be measured and knowing the questions in the instrument are valid. This test is carried out using the product moment method, which is to test each item of the question by looking at the value of the corected item total correlation with the help of the SPSS 23 program provided that the value of $r_{table} > 0.3$, is considered a valid item, while an item that has a value of r_{table} below 0.3 is considered an invalid item and must be excluded from the data and will not be included in further testing. The following is a summary of the results of validity testing for each research variable.

Based on the "correlations" output, it is known that the calculated r value (Pearson

correlation value for all of question with total score is $> 0,218$). all of question is valid

DISCUSSION

From the results of research on 60 respondents at RSGM Baiturrahmah, it was found that 9 respondents (12.9%) had good quality of life criteria, and as many as 51 respondents (72.9%) had poor quality of life criteria. The quality of life criteria from the results of this study provide an overview of the impact of caries in early childhood.

The low quality of life criteria from the results of this study is influenced by dental and oral health factors. Inadequate and undisciplined dental and oral health care directly affects early childhood activities. Many consequences result

from the lack of dental and oral care for children. The resulting consequences trigger caries in early childhood and if left untreated, it will have a serious impact on the health of early childhood.

In line with research conducted by Bunga Nurwati (2019) in her research on the Relationship between Dental Caries and Quality of Life in School Children aged 5-7 years, it is stated that using an analytical observational method based on correlation techniques was carried out on 138 samples of school children. The results of the correlation test using a value of $\alpha = 0.05$ showed an opposite correlation between the dental caries index and the quality of life of school children. Where the index which is the material for the correlation test provides a significant relationship ($p = 0.039$), which means that $p < 0.05$ on the tested variable. The conclusion is that the lower the dental caries index, the higher the quality of life of school children.¹⁰

The research that has been done has shown poor results, meaning that the symptoms caused the child to become fussy, feel uncomfortable at times eating and drinking, refusing to go to school and finding it difficult to sleep. Another factor that causes the lack of dental and oral care for children is economic problems and the number of family members.

1. The child is fussy / restless

The factors causing the lack of research results on respondents, seen from the results of the study which showed that 26 respondents (43.3%) had children who were never fussy / anxious and 34 respondents (56.7%) had fussy children. restless. The factor of children being fussy / anxious was the highest result obtained in the study.

In a study conducted by Sumini, et al (2014) in her research on the Relationship between Consumption of Sweet Foods and the Incidence of Dental Caries in Preschool Children at TK B RA Muslimat PSM Tegalrejodesa Semen Kecamatan

Nguntoronadi, Magetan Regency stated that the impact that occurs when caries is

already experienced from the start is in addition to the function of the teeth as a chewer which is disturbed, fussy, and swollen gums of children. Experience disruption in carrying out their daily activities, so that the child does not want to eat and the worse result can be malnutrition, the child cannot learn because of lack of concentration so that it will affect intelligence¹¹.

2. Discomfort when eating and drinking Factors causing the lack of results

Research on respondents, it can be seen from the results of the study which showed that out of 60 respondents, 30 respondents (50.0%) had children who felt comfortable when eating and drinking and as many as 30 respondents (50.0%) had felt uncomfortable when eating and drinking. This means that there is an average quality of life of the respondent in terms of discomfort when eating and drinking is balanced.

In line with research conducted by Sumini (2014) that high dental caries in children can lead to poor oral and dental health status. Dental caries can cause pain in the teeth and mouth as well as the jaw. Bacterial invasion that has reached the tooth pulp can cause throbbing pain that can affect physiological and psychological activities and functions in children. The majority of pain caused by dental caries is difficulty eating, brushing teeth, sleeping, playing and going to school. 21 Meanwhile, children aged 3-7 years have limited cognitive abilities to determine the quality and quantity of pain, so that parents also find it difficult to distinguish where the pain is located that the child complains of. Functional disorders in the form of difficulty eating and drinking (table 2) also have an impact on the process of absorption of food in the body. This will affect the nutritional status and development which will affect the quality of life of the child. 6,12 Approximately 17% of absent children from school are due to pain and infection of the teeth and mouth. 30 Dental caries has an impact on children's learning activities, but there is no relationship between absence and impaired children's learning achievement¹¹.

3. Don't go to school

The factors causing the lack of research results on respondents can be seen from the results of the study which showed that out of 60 respondents 19 respondents (31.7%) had children who always attended school and as many as 41 respondents (68.3%) had children who had never attended school. It can be seen that a large number of respondents do not attend school. This is because the low quality of life has an impact on children affects their discipline in attending school.

In line with Sumini's research (2014) which states that the impact of dental caries in RA Muslimat PSM Tegalrejo is a toothache that interferes with the chewing process while eating so that children's eating patterns are disturbed, causing decreased appetite and children not attending school ¹¹.

4. Hard to sleep

The factors causing the lack of research results on respondents, can be seen from the results of the study which showed that of the 60 respondents there were 26 respondents (43.3%) Having children has never had trouble sleeping and as many as 34 respondents (56.7%) had children who had experienced difficulty sleeping. The results showed a higher number of children who had difficulty sleeping due to the impact of dental caries.

In line with the research of Bunga Nurwati, et al (2019) which states that advanced caries can affect the health and quality of life of a person causing pain, difficulty sleeping and eating, decreasing body mass index, not attending school and even hospitalization and costs incurred for the treatment of severe caries was higher than in the case of the initial lesion. Bad oral conditions, for example the number of missing teeth as a result of damaged teeth or untreated trauma, will interfere with the function and activity of the oral cavity so that this also affects the development of the child which has an impact on the quality of life ¹⁰.

5. Family monthly expenses

The factors causing the lack of research results on respondents can be seen from the results of the study which showed that out of 60 respondents there were 5 respondents (8.3%) who had a small monthly household expenditure of 1,500,000 and as many as 55 respondents (91.7%) had house expenses. huge monthly ladder of 1,500,000. In this study, the highest family monthly expenditure was over 1,500,000, meaning that family monthly expenses did not affect the impact of dental health in early childhood.

In a study conducted by Bunga Nurwati (2019), around 47.8% of parents have never felt confused about children's oral health problems and around 44.2% of parents have never felt guilty about children's oral health problems. Likewise with the work problems of parents who are left behind due to health and dental problems for children. This shows that around 64.5% of parents never leave work due to dental and oral health problems for their children. Approximately 68.1% of parents said that dental and child health problems have never had an impact on family finances ¹⁰.

6. Number of family members

The factors causing the lack of research results on respondents can be seen from the results of the study which showed 23 respondents (38.3%) had less than 2.

CONCLUSION

Based on the results of research on the impact of dental caries on the quality of life of children aged 3-5 years at Paedodonti RSGM Baiturrahmah it can be concluded that of the 60 respondents, 9 respondents (12.9%) had good quality of life criteria, and as many as 51. respondents (72.9%) had poor quality of life criteria. Based on the "correlations" output, it is known that the calculated r value (Pearson correlation value for all of question with total score is > 0,218). all of question is valid.

The research, which was conducted by filling out a questionnaire distributed to

respondents, showed that the average caries child had a poor quality of life. This results in symptoms in children, namely the child becomes fussy, feels uncomfortable when eating and drinking, does not want to go to school and has difficulty sleeping. Another factor that causes the lack of dental and oral care for children is economic problems and the number of family members.

REFERENCES

1. Listrianah, R.A.Zainur, Levi Saputri Hisata. Gambaran Karies Gigi Molar Pertama Permanen Pada Siswa – Siswi Sekolah Dasar Negeri 13 Palembang. Jpp (Jurnal Kesehatan Poltekkes Palembang). 2018; 13(2).
2. Rifki A. Perbedaan efektivitas menyikat gigi dengan metode roll dan horizontal pada anak usia 8 dan 10 tahun di Medan. [Thesis] Medan, Universitas Sumatera Utara. 2010.
3. WHO. 2012. Oral health <http://www.who.int/mediacentre/factsheets/fs318/en/> (cited: 16 September 2013).
4. Putri MH, Herijulianti E dan Nurjanah N. Ilmu pencegahan penyakit jaringan keras dan jaringan pendukung gigi. Jakarta: EGC. 2011. (pp.56-77).
5. Martina Pakpahan, Deborah Siregar, Andi Susilawaty, Tasnim Mustar, Radeny Ramdany, Evanny Indah Manurung Efendi Sianturi, Marianna Rebecca Gadis Tomponu. Yenni Ferawati Sitanggang, Maisyarah. M Promosi Kesehatan dan Perilaku Kesehatan. Yayasan Kita Menulis: Jakarta. 2021.
6. Revina Nadya Elfarisi, Sri Susilawati, Anne Agustina Suwargiani Kesehatan gigi dan mulut terkait kualitas hidup anak usia 4-5 tahun di Desa Cilayung. J Ked Gi Unpad. 2018; 30(2): 85-94.
7. Ditmyer M, Dounis G, Mobley C, Schwarz E. A case-control study of determinants for high and low dental caries prevalence in Nevada youth. BMC Oral Health. 2010; 24(10): 1-8.
8. Baginska, J., 2013. Evaluation of the Status of Primary Dentition in 6–7-Year-Old Children from Bialystok District Using the Mean dmf and the Index of Clinical Consequences of Untreated Caries (pufa). Dent. Med. Probl. 2013; 50(2): 160–6.
9. Muralidharan S, Acharya A, Mallaiah P, Margabandhu S, Garale S, Giri M. Efficacy of dental floss as an adjunct to toothbrushing in dental plaque and gingivitis: An open-labeled clinical nonexperimental study. J Indian Assoc Public Health Dent. 2019; 17: 279-82.
10. Nurwati, B. Setijanto, D. Budi, H. 2019. Hubungan Karies Gigi Dengan Kualitas Hidup Pada Anak Sekolah Usia 5-7 Tahun. Jurnal Skala Kesehatan Politeknik Kesehatan Banjarmasin. 2019; 10(1).
11. Sumini, Amikasari, B., Nurhayati, D. 2014. Hubungan Konsumsi Makanan Manis Dengan Kejadian Karies Gigi Pada Anak Prasekolah Di TK B RA Muslimat PSM Tegalrejodesa Semen Kecamatan Nguntoronadi Kabupaten Magetan. Jurnal Delima Harapan. 2014; 3(2): 20-7.

