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RESEARCH ARTICLE

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Relationship of Dental Caries with Quality of Life in Early Childhood

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ABSTRACT

Quality of life is a person's ability to enjoy normal life activities. Healthy living is part of the quality of life, because it is healthy not only physically but also mentally and socially healthy. Oral health is an inseparable part of general health because dental and oral health conditions can affect daily life. The aim of the study was to determine the relationship between dental caries and quality of life in early childhood. A cross sectional study conducted in February 2021 at PAUD Baiturrohman Palembang. Sample consisted of 67 children and their mothers taken by purposive sampling. Dental caries status was measured using the def-t index and children's quality of life was measured using the Early Childhood Oral Health Impact Scale (ECOHIS). Data were analyzed using the Chi-square test with a 95% confidence interval. Most children have very high def-t category criteria (56.7%) and bad category in quality of life (53.7%). The bivariate analysis was found the significant relationship between dental caries and quality of life ($p < 0.05$), so it can be concluded that dental caries can reduce the quality of life. It is hoped that it can become an insight for the community, especially mothers as the main pillar of children's dental and oral health, in a strategic effort to prevent early caries based on community empowerment through the Innovative UKGTK and Innovative UKGS programs for early childhood in Palembang City.

Keywords: dental caries; def-t; quality of life; ECOHIS; early childhood

INTRODUCTION

Teeth in preschoolers are generally still primary teeth with tooth structure and morphology that are susceptible to caries. The prevalence of dental caries of preschoolers is still high due in part to their habit of brushing their teeth wrongly and the habit of often consuming cariogenic foods. In addition, the child is still very dependent on parents in terms of maintaining the cleanliness and health of their teeth. Many parents, especially mothers, think that deciduous teeth are not important because they will be replaced with permanent teeth. This thinking is wrong, because if the deciduous teeth have been perforated, usually the teeth will not be healthy later.⁽¹⁾

Until now dental caries in children are still a major problem of dental and oral health with a high prevalence. The age of 5-6 years the prevalence of carious teeth is still very high, namely 93%, meaning that only 7% of Indonesian children are free from dental caries.⁽²⁾ According to Bagramian, it is estimated that almost 90% of school-age children worldwide and most adults have suffered from caries.⁽³⁾ According to basic health research data (Riskesdas) in 2018 dental and oral health problems in Indonesia in In South Sumatra Province, 45.1% of children have damaged/perforated teeth.⁽²⁾ The prevalence of active caries in the Indonesian population increased by 43.4% in 2007 to 53.2% in 2013.⁽⁴⁾ In 2012, Prevalence of dental caries in kindergarten children in Palembang city was 88.28%.⁽⁵⁾

Advanced caries can affect a person's health and quality of life, causing pain, difficulty sleeping and eating, decreased body mass index, skipping school and even hospitalization and costs incurred for caries treatment are higher than in the case of early lesions. Quality of life refers to the patient's ability to enjoy normal life activities. Healthy living is part of the quality of life, therefore healthy not only physically but also must be mentally and socially healthy. Oral cavity health is an integral part of health care in general due to the condition of dental and oral health can affect daily life.⁽⁶⁾

Quality of life assessment in preschoolers can be done using the Early Childhood Oral Health Impact Scale (ECOHIS) instrument developed by Hernandez, et al. ECOHIS consists of 13 questions about dental and oral health issues over the last 3 months. The advantage of ECOHIS instrument compared to others is that ECOHIS

already shows a high success rate and is made to measure the quality of life associated with dental and oral health in preschoolers.⁽⁷⁾

METHODS

This cross-sectional study was conducted in February 2021 at PAUD Baiturrohim Palembang. Sample consist of 67 children and their mother that taken by purposive sampling technique. Dental caries are measured by a def-t index (d: decayed; e: extraction due to caries; f: filled due to caries) that is categorized into low (1.2-2.6), medium (2.7-4.4), high (4.5-6.5), and very high (>6.6). Children's quality of life is assessed using ECOHIS instruments that are categorized as good (score 13-21), medium (score 22-30), and bad (score 31-39). The data was analyzed using the Chi-square test with a 95% confidence interval.

This study was ethically approved by the Health Research Ethics Committee Health Polytechnic of Ministry of Health of Palembang with approval number 647/KEPK/Adm2/I/2021.

RESULTS

Table 1. Distribution of dental caries based on def-t index (n= 67)

Caries category	n (%)
Very high	38 (56.7)
High	11 (16.4)
Moderate	7 (10.4)
Low	7 (10.4)
Very low	4 (6)

Table 1 showed that 38 of 67 (56.7%) children has a very high categories dental caries, 11 of 67 (16.4%) children has high categories dental caries, 7 of 67 children (10.4) has moderate and low categories dental caries, and 4 of 67 children (6%) has a very low category dental caries.

Table 2. Distribution of children's quality of life using ECOHIS instruments (n=67)

Quality of life	n (%)
Bad	36 (53.7)
Moderate	17 (25.4)
Good	14 (20.9)

Table 2 showed that 36 of 67 children (53.7%) has bad quality of life, 17 of 67 children (25.4%) has a moderate quality of life, and 14 of 67 children (20.9) has a good quality of life.

Table 3. Bivariate test of dental caries relationship and quality of life in early childhood (n= 67)

Caries category	Quality of life			p value
	Bad n (%)	Moderate n (%)	Good n (%)	
Very low	1 (25)	3 (75)	0 (0)	0.000
Low	0 (0)	3 (42.9)	4 (57.1)	
Moderate	0 (0)	5 (71.4)	2 (28.6)	
High	8 (72.7)	2 (18.2)	1 (9.1)	
Very high	27 (71.1)	4 (10.5)	7 (18.4)	
Total	36 (53.7%)	17 (25.4%)	14 (20.9%)	

Table 3 showed that in most children with high and very high caries have a poor quality of life (72.7% and 71.1%), while in children with low caries have a good quality of life (57.1%). Chi-square test obtained a p value= 0.000 (<0.05) so it can be concluded that there is a significant relationship between dental caries and quality of life.

DISCUSSION

Most of children in PAUD Baiturrohim has a very high dental caries. The high incidence of dental caries in early childhood in PAUD Baiturrohim is also due to parents' lack of attention to the type of food their children consume and parents' knowledge about maintaining poor dental and oral health. Result interviews with

parents/guardians get the result that some child very interested in eating sweet and sticky foods such as sweets, chocolate, and ice cream, and after eating sweet foods their child does not brush their teeth directly. Some parents also prefer to keep their children's teeth perforated compared to patching teeth to the dentist or puskesmas. After the child starts teething, that's when dental care should be done by cleaning the teeth from the remnants of food attached to the surface of the teeth after consuming foods containing carbohydrates. According to Putri, et al. (2012), plaque is formed a lot if a person consumes a lot of soft foods, especially foods containing carbohydrates of sucrose type, because it will produce dextran and levan that play an important role in the formation of plaque matrix.⁽⁸⁾ Dental caries are formed because there are food wastes attached to the teeth, which ultimately causes the teeth to decay, perforate and even break. Children generally like sweet foods, and if children eat too many sweets and rarely clean them, then many of their teeth will experience caries.⁽³⁾ Dental caries cause the child to experience loss of chewing power and impaired digestion, resulting in less maximum growth.⁽⁹⁾

The quality of life in children at PAUD Baiturrohman is mostly in the bad criteria. Advanced caries can affect a person's health and quality of life causing pain, sleeplessness and eating, decreased body mass index, not attending school even hospitalization and the costs incurred for severe caries treatment are higher than the initial lesion cases. Poor oral condition, such as the number of teeth lost as a result of damaged teeth or untreated trauma, will interfere with the function and activity of the oral cavity so that it also affects the child's growth and development that impacts the quality of life.⁽⁶⁾ The results of early childhood quality of life assessment at PAUD Baiturrohman Palembang show that many of them are less comfortable when eating, often feel pain and pain in his teeth that causes many complaints until sometimes become out of school. Nurwati, et al. stated that the most common disorders are the onset of pain due to untreated dental caries, decreased appetite, difficulty chewing, difficulty eating some foods and drinking hot/cold, weight loss caused by the intake of food reduced, difficulty sleeping, behavioral changes as well as impaired learning activities.⁽¹⁰⁾ Therefore, dental health maintenance needs attention because although toothache does not cause death, it is very disruptive to concentration in work and activities so as to reduce productivity. Most children with high and very high caries have poor quality of life, whereas in children with low caries have a good quality of life. Akbar et al. and Hamid, et al. also found that poor oral health is an important factor that can negatively impact a child's quality of life and affect daily activities such as school and learning.^(11,12)

CONCLUSION

Dental caries are related to the quality of life of early childhood, where the higher the def-t index, the lower the quality of life of the child. It is hoped that it can become an insight for the community, especially mothers as the main pillar of children's dental and oral health, in a strategic effort to prevent early caries based on community empowerment through the Innovative UKGTK and Innovative UKGS programs for early childhood in Palembang City.

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