

Research article

Connection of Oral Health Related Quality of Life with Caries in Children with Stunting: descriptive study

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Submission: 27 March 2024

Revision: 27 May 2024

Accepted: 27 June 2024

Published: 30 June 2024

DOI: [10.24198/pjdrs.v8i2.54179](https://doi.org/10.24198/pjdrs.v8i2.54179)

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ABSTRACT

Introduction: *Stunting* is one of the growth and development problems that causes a child's body to become shorter or very short in accordance with his/her age and exceeds the Standard Deviation (SD) set by the World Health Organization (WHO), namely < -2 SD. The condition of *stunting* also inhibits the development of the oral cavity which causes children suffering from *stunting* to be more susceptible to caries. Caries experienced by children will have a negative impact on a child's daily life and can affect the quality of his/her life. This research aimed to analyze the relationship between caries status of a child with *stunting* and his quality of life.

Methods: The type of research used was a quantitative the descriptive research with correlational research method using correlational survey method with questionnaires conducted in Ciapus Village, Banjaran District, Bandung Regency. Samples were taken using purposive sampling technique with a sample size of 60 people. The time range used in this research was December 2023 – January 2024. The questionnaire used was The Early Childhood Oral Health Questionnaire. The Impact Scale (ECOHIS) was used to measure quality of life and the def-t index was used to measure the child's caries status. **Results:** The def-t index of stunted children in Ciapus Village was 6.46 which was considered as high in the category. Total percentage of ECOHIS questionnaire answers showed a value of 46.41% and was in the category of quite impactful. The results of the Spearman rank correlation calculation = 0.475, which meant that there was a fairly significant relationship. **Conclusion:** There is a weak relationship between oral health related quality of life and caries conditions in the oral cavity of stunted children, because poor quality of the child's oral cavity does not have a direct impact on the occurrence of caries.

KEYWORDS: *stunting*, caries, children's quality of life, children's oral health

Hubungan Oral Health Related Quality of Life dengan Karies pada Anak Stunting: studi deskriptif

ABSTRAK

Pendahuluan: Stunting adalah salah satu permasalahan tumbuh kembang yang menyebabkan tubuh anak menjadi lebih pendek atau sangat pendek tidak sesuai dengan usia nya dan melewati Standar Deviasi (SD) yang ditetapkan World Health Organization (WHO) yaitu < -2 SD. Kondisi stunting juga menghambat perkembangan rongga mulut yang menyebabkan anak yang mengalami stunting lebih rentan terkena karies. Karies yang dialami oleh anak akan berdampak buruk terhadap kehidupan anak sehari-hari dan dapat mempengaruhi kualitas hidupnya. Penelitian ini bertujuan untuk menganalisis hubungan antara status karies anak stunting dengan kualitas hidupnya. **Metode:** Jenis penelitian yang digunakan yaitu penelitian deskriptif kuantitatif dengan metode penelitian korelasional menggunakan metode survei dengan kuesioner yang dilakukan di Desa Ciapus, Kecamatan Banjaran, Kabupaten Bandung. Sampel diambil dengan menggunakan teknik purposive sampling dengan jumlah sampel 60 orang. Rentang waktu yang digunakan dalam penelitian ini adalah bulan Desember 2023 – Januari 2024. Kuesioner The Early Childhood Oral Health. Impact Scale (ECOHIS) digunakan untuk mengukur kualitas hidup dan indeks def-t digunakan untuk mengukur status karies anak. **Hasil:** Indeks def-t dari anak stunting di Desa Ciapus adalah sebesar 6,46 yang termasuk kategori tinggi. Persentase total jawaban kuesioner ECOHIS menunjukkan nilai sebesar 46,41% dan termasuk kedalam kategori cukup berdampak. Hasil perhitungan korelasi rank spearman = 0,475 yang memiliki arti memiliki hubungan cukup signifikan. **Simpulan:** Terdapat hubungan yang lemah antara oral health related quality of life dengan kondisi karies pada rongga mulut anak stunting, karena kualitas rongga mulut anak yang buruk tidak memiliki dampak secara langsung terhadap terjadinya karies.

KATA KUNCI: *stunting*, karies, kualitas hidup anak, kesehatan mulut anak

Citation: Rafilia, Yuanne Nisrina; Setiawan, Arlette Suzy; Indriyanti. Connection Oral Health Related Quality of Life with Caries in Children Stunting: descriptive study. Padjadjaran Journal of Dental Researchers and Students. 2024; 8(2): 144-152 DOI: [10.24198/pjdrs.v8i2.54179](https://doi.org/10.24198/pjdrs.v8i2.54179) Copyright: ©2024 by Padjadjaran Journal of Dental Researchers and Students. Submitted to Padjadjaran Journal of Dental Researchers and Students for possible open access publication under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

INTRODUCTION

Stunting is a condition where a child's body grows shorter or very short in relation to his/her age.¹ *World Health Organization* (WHO) states that a child is categorized as experiencing *stunting* seen by the height-for-age index (TB/U) which is < -2 *Standard Deviation* (SD) according to limits *z-score*.² The Indonesian Nutrition Status Survey (SSGI) in 2021 showed that the percentage of toddlers experiencing *stunting* in Indonesia was 24.4%, while the percentage of *stunting* in West Java Province was 24.5% and was classified as medium. The prevalence of *stunting* in Indonesia based on data from SSGI in 2021 showed that there was a decrease of 3.3% when compared to the results of SSGI in 2019 which had a prevalence of *stunting* amounting to 27.7%.³ Overall, the percentage of *stunting* among children in Indonesia in 2023 was 21.6%.⁴

The condition of *stunting* that inhibits a child's growth will also affect the growth of the child's oral cavity. For a child who experiences *stunting*, the condition of the oral cavity tends to be poor and is susceptible to caries. This is caused by changes in the characteristics of saliva in children with the condition of *stunting*.⁵ According to research, the condition of a child's oral cavity experiencing *stunting* is more susceptible to caries due to changes in saliva characteristics in which the saliva functioning as a buffer does not work well. This is also caused by disruption of the child's growth and development so that it also affects the development and function of the condition of the oral cavity.^{5,6}

Poor salivary conditions in children with *stunting* are caused by disruption of the development of the salivary glands so that the salivary glands become atrophic and cause a decrease in saliva flow. Decreased saliva flow will increase the risk of caries in children because of the disturbing function of saliva as *buffer* and *self-cleaning*. The results were obtained from a research report by Rahman *et al.*,⁶ among kindergarten students and students in Kertak Hanyar District, the prevalence of caries caused by *stunting* is higher compared to children who have healthy or adequate nutrition. Mattalitti results *et al.*,⁷ also stated that in the relationship between *stunting* and caries in children, there is a very strong relationship between a very high caries index in children and the condition *stunting*.

Hyposalivation is a decrease in saliva flow which causes a decrease in saliva secretion. Decreased saliva flow can cause many conditions that have a negative effect on the oral cavity. Conditions that can be influenced by decreased saliva flow in the oral cavity include increasing the risk of caries, inhibiting and disrupting the chewing and mastication processes, and causing many other diseases in the oral cavity.⁸ Ramadan *et al.*,⁹ stated that a decrease in pH and salivary flow rate is related to the nutritional status of each individual. This strengthens the statement that the condition of saliva in children with *stunting* tends to experience decreased saliva flow or hyposalivation.

Poor oral health in children with *stunting* will interfere with the child's daily behavior. This is because there is pain in the oral cavity which will be felt by the child and interfere with the child's daily activities.¹⁰ Primary teeth that experience caries will certainly disrupt the chewing function of the child's oral cavity and will affect the quality of life. Research conducted by Apro *et al.*,¹¹ obtained the results that caries in children's oral cavities has an impact and influence on social conditions and quality of life. This is also supported by research conducted by Aviva *et al.*,¹² which obtained results in the form of caries experiences in children with *stunting* in Indonesia that tends to be high and has a relationship that influences each other. The condition of a child's oral cavity suffering from *stunting* which tends to be bad and susceptible to caries will also affect the quality of life because the oral cavity is related to a person's appearance.

Quality of life is each individual's assessment of their condition in life in the context of their culture and value system in relation to their goals, expectations, standards and concerns about themselves.¹³ Evaluation of quality of life in early childhood can be done using a questionnaire whose validity and reliability have been tested. Assessment of the quality of life associated with the condition of the oral cavity for an early childhood can be assessed using a questionnaire of *Early Childhood Oral Health Impact Scale* (ECOHIS). The ECOHIS questionnaire is a component of *Children Oral Health Related Quality of Life* (COHRQoL) which is designed to measure the impact of complaints and conditions of a child's oral cavity on a child's quality of life by measuring the pain and complaints felt by the child.^{14,15}

Health problems that arise due to poor condition of a child's oral cavity will certainly affect the child's daily life. Poor oral cavity conditions will make children become less focused when studying, feel less confident when socializing, and make children become less comfortable when sleeping or eating.¹⁶ Health problems that arise in Banjaran District can be caused by limited health facilities in Banjaran District. The results of data from Bandung Regency Central Statistics Agency (BPS) in 2020 stated that in Banjaran District there was no hospital, either special hospital or maternity hospital. The health facilities in Banjaran District are 2 polyclinics in Ciapus Village, 1 polyclinic in Kamasan Village, and 5 polyclinics in Banjaran Village.

There are quite a lot of health facilities in Banjaran Village, namely Integrated Service Posts (Posyandu). It was recorded that there were a total of 170 active Posyandu from 2019 - 2020 in approximately 11 villages/sub districts in Banjaran District. Seeing the lack of other health facilities in Banjaran Village, this has an impact on the health and nutrition of children living in Banjaran District. The quality of a child's life is a very important aspect for a child's survival but is often paid little attention by parents.^{17,18}

Measuring a person's quality of life status using *OHRQoL acc* by Locker, 1988 is a very good measurement to use because it is subjective and tends to better understand the individual patient's oral condition.¹⁹ The latest research carried out is to look further at the status of caries in the oral cavity of children with the condition of *stunting* in a specific location, namely in Ciapus Village, Banjaran District, Bandung Regency with an age range of 2-5 years. A number of studies have stated that the poor condition of a child's oral cavity or being prone to caries can affect the child's daily life, so the aim of this research was to analyze the relationship between quality of life related to oral conditions and the caries status of stunted children.

METHODS

The research method used in this research was a quantitative descriptive research method with correlation research methods. The research was conducted in Ciapus Village, Banjaran District, Bandung Regency in January 2024. The population in this study was short and very short toddlers (*stunting*) in Ciapus Village, Banjaran District, Bandung Regency, totaling 60 children, as obtained from data at the Banjaran Community Health Center and has been subtracted from the number of toddlers who have moved residence, died, or are no longer included in the toddler or toddler category.

Sampling was carried out using *purposive sampling* technique, namely by using certain criteria that have previously been chosen by the researcher in determining the sample. The inclusion criteria for this study was children aged ≤ 5 years who had short or very short height (*stunting*) according to data from related health centers/medical personnel in Ciapus Village, Banjaran District. Exclusion criteria are children who were not recorded by the health center/relevant medical personnel as having short or very short height (*stunting*), children with conditions of *stunting* >5 years old in Ciapus Village, Banjaran District.

Determination of the sample size was calculated using the Correlation Research formula because the research that would be carried out aimed to analyze the relationship between 2 variables, and from this calculation the sample size was 60 children.

The variables in this study were the assessment of caries status of stunted children using the def-t score and assessment of quality of life related to oral health (OHRQoL) in children with *stunting* using the ECOHIS questionnaire (*Early Childhood Oral Health Impact Scale*). Data processing was carried out using a computer program of *Microsoft Excel* with correlation statistical analysis of *Spearman rank*.

RESULTS

The research was conducted on 60 research samples who were children with *stunting* in Ciapus Village, Banjaran District, Bandung Regency. Respondents who were research subjects were willing to volunteer to participate in the research. The distribution of the characteristics of the research subjects is presented in Table 1, the results of the def-t index calculation are presented in Table 2, and the results of the quality life calculation using

ECOHIS are presented in Tables 3 to Table 9, while the results of measuring the relationship between the two variables are presented in Table 10.

Table 1. Characteristic distribution research subjects

Characteristics	Child	
	n	%
Age (Years)		
2	18	30
3	23	38,3
4	16	26,7
5	3	5
Total	60	100

Table 1 shows an overview of the distribution of characteristic research subjects based on the child's age. The majority of the sample of children in Ciapus Village with the highest figure at 3 years old was 23 children (38.3%) and the age of the children with the least participation was 5 years with as many as 3 children (5%).

Table 2. Def-t index and classification according to WHO

Skor def-t	f	Percentage (%)
Low (0-2)	13	21,66
Medium (3-5)	9	15
High (≤ 6)	38	63,33
def-t index 6,46		Classification according to WHO Height

Table 2 shows the index def-t and classification according to WHO. The average index value def-t in children with stunting in Ciapus Village was 6.46. According to the WHO classification, the def-t index is included in the high category (> 6).

Table 3. Frequency and percentage of answers regarding child symptoms

Child Symptoms	Once (1)		Never (0)		Don't Know (2)	
	f	%	f	%	f	%
Has your child ever experienced pain in the teeth, mouth and jaw?	53	83,33	7	11,66	0	0
Total Score	53					
Total Percentage	83,33					

Table 3 shows the frequency and percentage of answers regarding symptoms of pain in the oral cavity felt by the child with stunting in Ciapus Village. The results of the answers from the subcategory of children's symptoms was 53 children (83.33%) had experienced pain in their teeth, mouth and jaw, while 7 children (11.66%) had never experienced pain in their teeth, mouth and jaw. These results have a total percentage of 83.33% and are included in the very impactful category.

Table 4. Frequency and percentage of answers regarding child function

Child Function	Once (1)		Never (0)		Don't Know (2)	
	f	%	f	%	f	%
1. Has your child ever had difficulty drinking hot or cold drinks due to teeth and mouth problems or after receiving dental treatment?	53	83,33	7	11,66	0	0
2. Has your child ever had difficulty eating certain types of food due to teeth and mouth problems or after receiving dental treatment?	42	70	18	30	0	0
3. Has your child ever had difficulty speaking due to problems with their teeth and mouth or after receiving dental treatment?	32	53,33	28	46,66	0	0
4. Has your child ever missed school because of problems with their teeth and mouth or after receiving dental treatment?	0	0	60	100	0	0
Total Score	127					
Total Percentage	52,92					

Table 4 shows the frequency and percentage of answers regarding the function of the child's oral cavity with *stunting* in Ciapus Village. The results of the answers from the

subcategory of children's function was that 53 children (83.33%) had difficulty eating or drinking hot and cold food due to problems with their oral cavity, while 7 children (11.66%) had never experienced such difficulties. 42 children (70%) had difficulty eating certain types of food when there were problems in their oral cavity and 18 children (30%) had never felt difficulty eating. Then 32 children (53.33%) had difficulty speaking because of problems in their mouth/oral cavity while 28 children (46.66%) never felt this complaint. In the last question 0 children (0%) were ever permitted to go to school when there was a problem with their oral cavity and 60 children (100%) were never permitted to go to school because there was a problem in his oral cavity. This is due to 60 children with *stunting* who live in Ciapus Village had not yet gone to school. The total percentage of the four answers was 52.92% which is included in the quite impactful category.

Table 5. Frequency and percentage of answers regarding child psychology

Child Psychology	Once (1)		Never (0)		Don't know (2)	
	f	%	f	%	f	%
1. Has your child ever had difficulty sleeping due to teeth and mouth problems or after receiving dental treatment?	31	51,66	29	48,33	0	0
2. Has your child ever become irritable or frustrated because of problems with their teeth and mouth or after receiving dental treatment?	31	51,66	29	48,33	0	0
Total Score	62					
Total Percentage	51,66					

Table 5 shows the frequency and percentage of answers regarding two questions related to children's psychological conditions with *stunting* in Ciapus Village. The results of answers from the child psychology sub-category stated that 31 children (51.66%) had difficulty sleeping because of problems with their oral cavity and complained that the child's emotions became irritable and cried because of problems with their oral cavity, while 29 children (48.33%) never had any complaints about her child's psychology caused by pain in the oral cavity. The two child psychology sub-dimensional questions had a total percentage of 51.66% which is included in the quite impactful category.

Table 6. Frequency and percentage of answers regarding children's self-image and social interactions

Self-image and Children's Social Interactions	Once (1)		Never (0)		No Know (2)	
	f	%	f	%	f	%
1. Has your child ever refused to smile or laugh in front of other children because of teeth and mouth problems or after receiving dental treatment?	29	48,33	31	51,66	0	0
2. Has your child ever refused to talk to other children because of teeth and mouth problems or after receiving dental treatment?	25	41,66	35	58,33	0	0
Total Score	54					
Total Percentage	45					

Table 6 shows the frequency and percentage of answers regarding children's self-image and social interactions with *stunting* in Ciapus Village. The results of the answers from the subcategory of children's self-image and social interactions was that 29 children (48.33%) had never refused to smile and laugh in front of other children because of problems with their oral cavity, while 31 children (51.66%) had never. Then 25 children (41.66%) had never refused to talk to other children because of problems with their oral cavity while 35 children (58.33%) had never refused to talk to other children because of problems with their oral cavity with a total percentage of 45% which means it is included into quite impactful category.

Table 7. Frequency and percentage of answers regarding parental conditions

Parents' situation	Once (1)		Never (0)		No Know (2)	
	f	%	f	%	F	%
1. Has your mother or other family members ever felt upset because of problems with your child's teeth and mouth or after your child received dental treatment?	26	43,33	34	56,66	0	0
2. Has your mother or other family members ever felt guilty because of problems with your child's teeth and mouth or after your child received dental treatment?	33	55	27	45	0	0
Total Score	59					
Total Percentage	49,17					

Table 7 shows the frequency and percentage of parents' answers to children's conditions with *stunting* in Ciapus Village. The results of the answers from the subcategory of parental conditions was that 26 parents (43.33%) had felt annoyed because of problems that had occurred in their child's oral cavity and 33 parents (55%) had felt guilty because of problems in their child's oral cavity. The total percentage of sub-dimensions of parental conditions was 49.17% which is classified as quite impactful.

Table 8. Frequency and Percentage of Answers regarding Family Functions

Family Functions	Once (1)		Never (0)		Don't Know (2)	
	f	%	f	%	f	%
1. Has your mother or other family members ever taken time off from work because of problems with your child's teeth and mouth or after your child received dental treatment?	3	5	57	95	0	%
2. Have your child's dental problems or dental care ever had an impact on your family's financial situation?	4	66,6	56	93,33	0	%
Total Score	7					
Total Percentage	5,83					

Table 8 shows the frequency and percentage of children's family function answers with *stunting* in Ciapus Village. The results of the answers from the family function sub-category was that 3 families (5%) had taken leave from work because of problems with their child's oral cavity and 4 families (6.66%) felt that problems with their child's oral cavity had an impact on their family's financial condition. These two questions produced a total percentage of 5.83% which was included in the less impact category.

Table 9. Score and Percentage of Total Answers on the ECOHIS Questionnaire

Question Number	Answer			Score	%	Information
	Once	Never	Don't know			
	1	0	2			
1	53	7	0	53	88,33	Very impactful
2	53	7	0	53	88,33	Very impactful
3	42	18	0	42	70	Very impactful
4	32	28	0	32	53,33	Quite impactful
5	0	60	0	0	0	No impact
6	31	29	0	31	51,66	Quite impactful
7	31	29	0	31	51,66	Quite impactful
8	29	31	0	29	48,33	Quite impactful
9	25	35	0	25	41,66	Quite impactful
10	26	34	0	26	43,33	Quite impactful
11	33	27	0	33	55,00	Quite impactful
12	3	57	0	3	5	Less Impact
13	4	56	0	4	6,66	Less Impact
Total Score				362		
Total Percentage					46,41	

Table 9 shows the total score and percentage of answers regarding relationships, oral *health related quality of life*, *child stunting* with his oral condition and is an overall view of the answer from *items in* ECOHIS questionnaire questions. The percentage regarding the impact on dental and oral health related to quality of life was obtained at 46.41%, thus it

can be categorized in the moderately impactful category.

Table 10. Results of spearman's test analysis

ECOHIS		
	R	0,475
def-t	p value	0,001
	n	60

* α : 0.05

Table 10 is the result of correlation test analysis of *Spearman's rank* which produces a value of $r = 0.475$ and $p \text{ value} = 0.001$, which means that there is a significant relationship between dental caries status in children with stunting with quality of life related to oral health (Oral Health Related Quality of Life), meaning that the higher the dental caries, the worse the quality of life of a child with *stunting*.

DISCUSSION

Research on the correlation between quality of life related to oral conditions and the oral cavity and caries status in children with *stunting* conducted in Ciapus Village, Banjaran District, Bandung Regency with subjects of 60 children who were matched with the characteristics presented in table 1. The difference between the subjects of this research and previous research conducted by Elfarisi *et al.*, is the age of the subjects used. In this study, the subjects used were 2-6 years old, whereas in previous studies 4-5 years old were used.¹

Table 2 shows that the biggest problem in the oral cavity is caries with a caries index of 6.46 and is categorized according to the def-t index based on WHO criteria, namely very low (0.1-1), low (1.2-2.6), medium (2.7-4.4), high (4.5-6.5), and very high (>6.5), so the def-t index in this study was in the high category.²⁰ These results are also in accordance with research conducted by Normansyah *et al.*, which states that the caries index in children who experience *stunting* was very high with the results of 8 out of 24 children experiencing *stunting* affected by caries.²¹ From those previous study results, we can conclude that the caries index of stunting children in Ciapus is high.

The thing that is of concern in this research is the correlation between the child's quality of life and the symptoms felt by the child using the ECOHIS questionnaire. The similarity in the use of the ECOHIS questionnaire in previous research conducted by Elfarisi *et al.*, was based on the age of the samples being still classified as minors with differences in the number of samples and location of subject collection.¹ The ECOHIS questionnaire is a special questionnaire used to assess a child's quality of life which is associated with the condition of their oral cavity. The research was conducted by looking at two dimensions of the ECOHIS questionnaire, namely child influence (child symptoms, child function, child psychology, and child self-image and social interactions) and parental influence (parental condition and family function). The total percentage in table 3 which discusses the sub-dimensions of child symptoms from the dimension of child influence, results in a quite large total score percentage of 83.33%.

Oral Health Related Quality of Life is an individual assessment regarding the pain or comfort resulting from the condition of the oral cavity of each individual, both adults and children. Assessment of the quality of life of children and adults can be seen in different ways. This is because the condition of a person's oral cavity also depends on their age. In children, we can see a child's quality of life which is related to the condition of his oral cavity by assessing how the child adapts to the surrounding environment, how the child can increase his self-confidence, and how the child's assessment of his appearance is related to the condition of the oral cavity. These results are accordance with table 3.

Many parents complain that the pain that appears in their child's oral cavity is caused by caries. This is supported by the results of research conducted by Andriyani *et al.*, and shows that a child having the condition of *stunting* is more susceptible to caries.²² This condition is also worsened by parents not immediately handling caries. Many parents do not know how to prevent caries in their children's oral cavity, and even allow their children not to brush their teeth every day. This causes caries in the child's oral cavity to get worse and

spread, so that the pain felt by the child increases. After being averaged, the four questions included in the sub-dimensions of child functioning yielded a total percentage result shown in table 4 of 52.92%. Concluded that these results are accordance with table 4.

The average results of the two questions regarding child psychology contained in table 5 obtained an average result of 51.66%. The results obtained in this study are different from previous research conducted by Elfarisi *et al.*, which obtained results of 20.83%.¹ The dimension of parental influence in the ECOHIS questionnaire has two sub-dimensions, namely parental circumstances and family function. The purpose of questions regarding the condition and condition of the parents also needs to be known so that the assessment of the quality of life related to the child's oral cavity can be assessed as a whole in a clearer and more detailed manner. The results obtained are in accordance with table 5.

The average results of the sub-dimensional conditions of parents shown in table 7 get a percentage of 49.17%, which means that quite a lot of parents feel guilty when their children feel pain in their oral cavity and quite a few parents feel annoyed when their children feel it. pain in the oral cavity. The two questions regarding family function in table 8 are the questions that have the least influence on the child's quality of life. The average obtained for the family function sub-dimension was 5.83%. These results are in accordance with research conducted by Nurwati *et al.*,²³ which states that children's dental and oral health problems do not have much impact on the sub-dimensions of family functioning.

Overall, the influence of oral conditions on quality of life in children with *stunting* in Ciapus Village, Banjaran District, Bandung Regency as shown in table 9 produces an average value of 46.41% and is in the moderately impactful category. Abdat's research *et al.*, also strengthened these results by stating that there was a strong correlation between the conditions of *stunting* and high levels of caries in children's oral cavities.²⁴ These results can be caused by the function of the oral cavity not working properly, such as the function of saliva *buffer* being disturbed, poor oral hygiene of a child with *stunting*, poor motor skills of children with *stunting* to take care of and clean the oral cavity, and the lack of knowledge of parents in taking care of and treating the cleanliness of the child's oral cavity with *stunting*.^{25,26}

The relationship between children's quality of life experiencing *stunting* and the condition of caries in the oral cavity was assessed using correlation analysis of *Spearman's Rank*. Test results of *Spearman's* shown in table 10 produces a correlation coefficient (r) value of 0.475 and a p value of 0.001. The manifestation of the results of this statistical analysis means that there is a significant relationship between dental caries status and quality of life related to oral health (*Oral Health Related Quality of Life*) in children with *stunting*. The similarity with previous research conducted by Elfarisi *et al.*, is that caries conditions in children with *stunting* are considered quite impactful conditions.

The limitation of this study is that it was mostly children with *stunting* in Ciapus Village who have not yet gone to school, so the question regarding the relationship between pain in the child's oral cavity and its influence on learning at school cannot be answered.

CONCLUSION

There is a weak correlation between quality of life (*oral health related quality of life*) with caries conditions in the oral cavity of stunted children. This is because quality of life is related to the condition that a child's poor oral cavity does not have a direct impact on the occurrence of caries. The implication obtained in this research is to increase the awareness and knowledge of parents of children with conditions of *stunting* on the cleanliness and health of the oral cavity.

Author Contributions: Conceptualization, ASPP and RI; methodology, ASPP and RI; software, YNR, validation, YNR, ASPP, RI; formal analysis, YNR; writing-initial draft preparation, YNR; supervision, ASPP and RI. All authors have read and approved the published version of the manuscript.

Funding: This research did not receive funding from external parties.

Ethics Approval: This research was carried out and approved by the Ethics Committee of Universitas Padjadjaran with ethical suitability number: No. B / 43 /EC/LKS/XI/RSMTH / 2023, issued on 15 November 2023.

Data Consent Statement: Data is not available for privacy or ethical reasons.

Data Availability Statement: Data is not available for privacy or ethical reasons.

Conflict of Interest: The authors declare no conflict of interest.

REFERENCES

1. Lubis DP, Ginting K, Manik HGM, Rahmadi MT. Identifikasi Pencegahan Stunting Pada Balita Melalui Penerapan Pola Hidup Sehat (Studi Kasus Kelurahan Sunggal). *Satwika: J Pengabdian Kepada Masy.* 2023;3(1):63-69. DOI: [10.21009/satwika.030106](https://doi.org/10.21009/satwika.030106)
2. Apriluana G, Fikawati S. Analisis Faktor-Faktor Risiko terhadap Kejadian Stunting pada Balita (0-59 Bulan) di Negara Berkembang dan Asia Tenggara. *Media Penelitian dan Pengembangan Kesehatan.* 2018; 28(4):247-256. DOI: [10.22435/mpk.v28i4.472](https://doi.org/10.22435/mpk.v28i4.472)
3. Kemenkes RI. Buku Saku Hasil Studi Status Gizi Indonesia (SSGI) Tingkat Nasional, Provinsi dan Kabupaten/Kota Tahun 2021. Published December 27, 2021. Accessed July 2, 2024. <https://www.badankebijakan.kemkes.go.id/buku-saku-hasil-studi-status-gizi-indonesia-ssgi-tahun-2021/>
4. Rapat PARIPURNA: Dewan Perwakilan Rakyat Indonesia. Di Tahun 2024, Penurunan Stunting Harus Jadi Fokus Bersama. Published 2024. Accessed March 15, 2024. <https://www.dpr.go.id/berita/detail/id/48290/t/Kurniasih:%20Di%20Tahun%202024,%20Penurunan%20Stunting%20Harus%20Jadi%20Fokus%20Bersama>
5. Lutfi A, Flora R, Idris H, Zulkarnain M. Hubungan Stunting dengan Tingkat Keparahan Karies Gigi pada Anak Usia 10-12 Tahun di Kecamatan Tuah Negeri Kabupaten Musi Rawas. *Jurnal Akademika Baiturrahim Jambi.* 2021;10(2):426. DOI: [10.36565/jab.v10i2.395](https://doi.org/10.36565/jab.v10i2.395)
6. Rahman T, Adhani R, Triawanti. Hubungan antara Status Gizi Pendek (Stunting) dengan Tingkat Karies Gigi. *Dentino Jurnal Kedokteran Gigi.* 2016;1(1):88-93. DOI: [10.20527/dentino.v1i1.427.g350](https://doi.org/10.20527/dentino.v1i1.427.g350)
7. Sitti Fadhillah Oemar Mattalitti SAAA. Hubungan stunting dengan status karies pada anak usia 3-5 tahun di Kecamatan Parangloe Kabupaten Gowa tahun 2021. Published online 2021. DOI: [10.35856/mdj.v1i2i.705](https://doi.org/10.35856/mdj.v1i2i.705)
8. Rafifa Wirza Thifla. Efektivitas Jus Nanas Terhadap Hiposalivasi Pada Anak Stunting. Diploma Thesis. Universitas Andalas; 2023. Accessed July 2, 2024. scholar.unand.ac.id/202775/
9. Andi Fitria Ramadhani. Penurunan Ph Dan Laju Aliran Saliva Akibat Malnutrisi Energi Protein. Thesis. Hassanudin University; 2020. Accessed August 23, 2023. <https://repository.unhas.ac.id/id/eprint/11702/>
10. Patera Nugraha A, Rezki F, Sarasati A. The Crucial Dentist Role Toward Stunting Prevention in Indonesia. *Indian J Public Health Res Dev.* 2020;11(03):1797. DOI: [10.37506/ijphrd.v11i3.2019](https://doi.org/10.37506/ijphrd.v11i3.2019)
11. Apro V, Purnama Sari D. Dampak Karies Gigi Terhadap Kualitas Hidup Anak. DOI: [10.25077/adj.v8i2.204](https://doi.org/10.25077/adj.v8i2.204)
12. Aviva NN, Pangemanan DHC, Anindita PS. Gambaran Karies Gigi Sulung pada Anak Stunting di Indonesia. *e-GiGi.* 2020;8(2):73-78. DOI: [10.35790/eq.8.2.2020.29907](https://doi.org/10.35790/eq.8.2.2020.29907)
13. Jaeken K, Cadenas De Llano-Pérula M, Lemiere J, Verdonck A, Fieuws S, Willems G. Reported changes in oral health-related quality of life in children and adolescents before, during, and after orthodontic treatment: A longitudinal study. *Eur J Orthod.* 2019;41(2):125-132. DOI: [10.1093/ejo/cjy035](https://doi.org/10.1093/ejo/cjy035)
14. Indriyanti R, Rejeki Nainggolan T, Sri Sundari A, Chemiawan E, Gartika M, Suzy Setiawan A. Modelling the Maternal Oral Health Knowledge, Age Group, Social-Economic Status, and Oral Health-Related Quality of Life in Stunting Children. *Int J Stat Med Res.* 2021;10:200-207. DOI: [10.6000/1929-6029.2021.10.19](https://doi.org/10.6000/1929-6029.2021.10.19)
15. Arrow P, Klobas E. Evaluation of the Early Childhood Oral Health Impact Scale in an Australian preschool child population. *Aust Dent J.* 2015; 60(3): 375-81. DOI: [10.1111/adj.12236](https://doi.org/10.1111/adj.12236)
16. Nasia AA, Rosyidah AN, Ibrahim N. Relationship between Parental Health Behaviour and Oral Health Related Quality of Life among Preschoolers. *e-GiGi.* 2022;10(1):135. DOI: [10.35790/eq.v10i1.39126](https://doi.org/10.35790/eq.v10i1.39126)
17. Indonesia IDGA. Penilaian Kualitas Hidup Anak: Aspek Penting yang Sering Terlewatkan. Published 2015. Accessed August 8, 2023. <https://www.idai.or.id/artikel/seputar-kesehatan-anak/penilaian-kualitas-hidup-anak-aspek-penting-yang-sering-terlewatkan>
18. FDI. Oral Health and Quality of Life. Accessed August 8, 2023. <https://www.fdiworlddental.org/oral-health-and-quality-life>
19. Genderson MW, University VC, Sischo L, et al. An Overview of Children's Oral Health-Related Quality of Life Assessment: From Scale Development to Measuring Outcomes. 2014;47(0 1):13-21. DOI: [10.1159/000351693.An](https://doi.org/10.1159/000351693.An)
20. Supriatna A, Fadillah RPN, Nawawi AP. Description of dental caries on mixed dentition stage of elementary school students in Cibeber Community Health Center. *Padjadjaran Journal of Dentistry.* 2017;29(3). DOI: [10.24198/pjd.vol29no3.14303](https://doi.org/10.24198/pjd.vol29no3.14303)
21. Normansyah TA, Setyorini D, Budirahardjo R, Prihatiningrum B, Dwiattmoko S. Indeks karies dan asupan gizi pada anak stunting: Caries index and nutritional intake of stunted children. *Jurnal Kedokteran Gigi Universitas Padjadjaran.* 2022;34(3):266. DOI: [10.24198/jkg.v34i3.34080](https://doi.org/10.24198/jkg.v34i3.34080)
22. Andriyani D, Arianto A, Chandra R. Short Nutrition Status (Stunting) with Dental Caries in Preschool Children In Sukabumi Indah Village Bandar Lampung City. *JDHT Journal of Dental Hygiene and Therapy.* 2023;4(1):8-12. DOI: [10.36082/jdht.v4i1.903](https://doi.org/10.36082/jdht.v4i1.903)
23. Bunga Nurwati DSHSB. Hubungan Karies Gigi Dengan Kualitas Hidup Pada Anak Sekolah Usia 5-7 Tahun. Vol 10.; 2019. DOI: [10.31964/jsk.v10i1.164](https://doi.org/10.31964/jsk.v10i1.164)
24. Abdat M, Usman S, Chairunas, Suhaila H. Relationship between stunting with dental and oral status in toddlers. *Journal of Dentomaxillofacial Science.* 2020;5(2):114-119. DOI: [10.15562/jdmfs.v5i2.1064](https://doi.org/10.15562/jdmfs.v5i2.1064)
25. Cempaka K, Ade Putri Pratiwi B, Adhani R, Kusuma Wardani I, Putri Pratiwi A. Pratiwi: Correlation Of Salivary Flow Rate In Stunting Children to Dental Caries Level The Overview of Elementary School Students in Sungai Tiung.; 2023. DOI: [10.20527/dentin.v7i1.8334](https://doi.org/10.20527/dentin.v7i1.8334)
26. Putri TN, Indriyanti R, Setiawan AS. A descriptive study on oral hygiene practice and caries increment in children with growth stunting. *Frontiers in Oral Health.* 2023;4. DOI: [10.3389/froh.2023.1236228](https://doi.org/10.3389/froh.2023.1236228)