

Oral Hygiene and Oral Health Related Quality of Life of Children with Stunting in Indonesia

Research Article

Husain Akbar F^{1*}, Pratiwi R¹, Sri Naca Hardiana AN²¹ Department of Dental Public Health, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.² Clinical Student, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.

Abstract

Objective: The purpose of this research is to find out about the description of oral hygiene, and the quality of life-related to dental and oral health in patients with stunting in Enrekang Regency.

Materials and Methods: This study was an observational analytic cross-sectional study design conducted on 29 April-3 May 2019. This study used BMI scores for height measurements, OHI-S scores for oral cavity and assessment of children's quality of life-related to oral health. using the Child Perception Questionnaire. During data collection, 334 subjects participated in the study until the end. Subjects aged 8-10 years as many as 70 people were given a CPQ8-10 questionnaire to assess the oral health related quality of life, while for subjects aged 11-12 years as many as 20 people were given a CPQ11-14 questionnaire to assess the quality of life-related to their oral health.

Results: There were 123 children from all subjects who were stunted. The mean value of OHI-S based on age and sex of the highest stunting children at 6-7 years old (2.03 ± 0.74). Based on sex the mean value of OHI-S was higher in males (1.83 ± 0.81).

Conclusion: Based on the results of the study, it can be concluded that children who experience stunting in Enrekang District have moderate oral hygiene status and based on the dimensions of quality of life, stunting children have the most complaints on the dimensions of oral symptoms.

Keywords: Stunting; Oral Hygiene; Quality of Life.

Introduction

Stunting is one of the nutritional problems faced in the world, especially in poor and developing countries. Stunting is a problem because it is associated with an increased risk of morbidity and death, suboptimal brain development so that motor development is delayed and stunted mental growth [1, 2].

Stunting is measured by an indicator of height measurement for age (TB/U) according to WHO child growth standard, that is if the z-score (TB/U ≤ 2 SD). Indicators (TB/U) indicates chronic nutritional problems as a result of long-standing conditions, such as poverty, unhealthy behavior, and poor parenting or eating patterns since a child is born to cause the child to become short [3, 4].

The prevalence of stunting in children under five based on Basic Health Research data in 2007 and 2010 in Indonesia is still very high, namely 36.8% (18.8% very short and 18.0% short) in 2007 and 35.6% (18.5% is very short and 17.1% is short) in 2010 so it can be concluded that stunting occurs in more than one third of children under five in Indonesia [5, 6].

South Sulawesi Province experienced an increase in stunting from 2007 (29.1%), increasing in 2010 (36.8%) and again experiencing an increase in 2013 to 40.9%. This indicates that the problem of stunting in infants is a public health problem considered serious because it reaches a stunting prevalence of $\geq 40\%$. Enrekang Regency is the regency with the highest stunting prevalence, which is 53.37% in 2013 in South Sulawesi [8].

Dental and oral health is an integral part of body health, mean-

***Corresponding Author:**

Fuad Husain Akbar,
Department of Dental Public Health, Faculty of Dentistry, Hasanuddin University, Makassar, Indonesia.
Tel: +62-81243422362
E-mail: fuadgi2@gmail.com

Received: December 23, 2019

Accepted: January 07, 2020

Published: January 09, 2020

Citation: Husain Akbar F, Pratiwi R, Sri Naca Hardiana AN. Oral Hygiene and Oral Health Related Quality of Life of Children with Stunting in Indonesia. *Int J Dentistry Oral Sci.* 2020;7(1):711-717. doi: <http://dx.doi.org/10.19070/2377-8075-20000140>

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ing that a healthy body is inseparable from having healthy teeth and mouth. Therefore, to carry out development in the field of health, development in the field of dental health must not be abandoned. However, at this time Indonesian people's awareness of the importance of having a healthy quality of dental health is still lacking. Tooth and mouth hygiene is a condition where the teeth inside the oral cavity are clean, free from plaque, tartar, and food scraps and not smell in the mouth. Good dental hygiene can affect a person's quality of life, such as: chewing, eating, swallowing and talking. Poor oral hygiene conditions such as calculus and stain, many dental caries, and toothless or toothless conditions can cause problems in daily life [9].

Parental knowledge is also very important in underlying the formation of behaviors that support children's dental and oral hygiene. Such knowledge can be obtained naturally or in a planned manner through the education process. Parents with low knowledge about dental and oral health will have an impact on behavior that is not supportive of maintaining the oral health of children. Children have a close relationship with parents, especially their mothers. Generally, the maintenance of children's health depends on the mother. The closeness of the mother's relationship with her child has been stated by Fukuta who stated that the mother's behavior regarding dental health can be used to predict the health status of her child's teeth. If the mother's behavior regarding dental health is good, it can be predicted that her child's dental health status is also good [10].

Short toddler problems describe the existence of chronic nutritional problems, influenced by the condition of the mother/prospective mother, the fetus, and infancy/toddler, including illnesses, suffered during infancy. Like other nutritional problems, it is not only related to health issues but is also influenced by various other conditions that indirectly affect health [11]. Related to efforts to reduce and manage the prevalence of government stunting at the national level and then issue various policies and regulations that are expected to contribute to reducing prevalence stunting, including Minister of Health Regulation (Permenkes) No.15/2013 concerning Procedures for Providing Special Facilities for Breastfeeding and/or Milking, 23/2014 concerning Efforts to Improve Nutrition [12, 13].

Many factors cause a high incidence of stunting in infants. The direct cause is a lack of food intake and the presence of infectious diseases [14]. Other factors are lack of mother's knowledge, wrong parenting, poor sanitation and hygiene, and poor service. In addition, people do not realize that short children are a problem because short children in the community are seen as children with normal activities, unlike thin children who must be dealt with immediately. Likewise, maternal nutrition during pregnancy, the community has not yet realized the importance of nutrition during pregnancy contributing to the nutritional state of the baby to be born later [12, 15].

Based on the background description, the researchers are interested in conducting research on the description of oral hygiene, and quality of life-related to dental and oral health in patients with stunting in Enrekang Regency.

Materials and Methods

Study Design

Type of this study is an observational analytic cross-sectional study design. This research was conducted in Enrekang District, Buntu Batu, Baraka and Malua Subdistricts in 6 elementary schools, namely SDN 94 Balla, SDN 20 Baraka, SDN 114 Balombong, SDN 24 Malua, SDN 106 Panyurak, and SDN 5 Pasui on April 29- May 3, 2019. The target population of this study is stunting children aged 6-12 years in three districts with the highest prevalence of stunting in Enrekang District, namely Baraka, Malua, and Buntu Batu Subdistricts. Willing to participate in the entire series of studies. Height and caries status checks were performed on 405 children, but 71 students did not return and complete the questionnaire. A total of 334 children participated in the study which filled out the questionnaire in full.

Measurement of height: Height measurements are measured with an accuracy of 0.1 centimeters. Height data were then converted into a BMI z score for age and a high z score for age with the WHO AnthroPlus software, which uses the WHO 2007 Growth reference. Stunting is defined as a high-for-age z score $< -2SDS$; score $\geq -2SD$ is classified as not stunting [12].

Assessment of oral hygiene: Assessment of oral hygiene using the OHI-S index. OHIS score:[16]

The degree of oral hygiene clinically associated with OHI-S scores are as follows:

Good: If the score is 0.0 - 1.2

Medium: If the score is 1.3 - 3.0

Poor: If the score is 3.1 - 6.0

Assessment of children's oral health related quality of life:

Quality of life of children aged 8-10 years related to oral health is measured using the Child Perception Questionnaire (CPQ₈₋₁₀). 4 domains are covering 25 questions contained in CPQ₈₋₁₀ namely oral symptoms, functional limitations, emotional well-being and social well-being (attached). There are also questions about you and other people (attached). The response format for 25 questions is based on a Likert Scale. Each question is given a score of 0-4 (0 for never, 1 for once/twice, 2 for sometimes, 3 for often and 4 for almost every day/every day). A score of 0-2 is categorized as having no impact, and a score of 3-4 is considered as having an impact. The total score can vary from 0-100. A high score indicates a greater dental and oral health impact on the quality of life, meaning lower OHRQoL. Conversely, if a low score indicates dental and oral health less impact on the quality of life, it means that OHRQoL is high [17]. Quality of life of children aged 11-14 years related to oral health is measured using the Child Perception Questionnaire (CPQ₁₁₋₁₄). 4 domains are covering 37 questions contained in CPQ₁₁₋₁₄ namely oral symptoms, functional limitations, emotional well-being and social well-being (attached). Each question is given a score of 0-4 (0 for never, 1 for once/twice, 2 for sometimes, 3 for often and 4 for every day). A score of 0-2 is categorized as not having an impact, and a score of 3-4 is categorized as having an impact. The total range of scores obtained

from 0 to 148. A high score indicates a greater impact on dental and oral health on quality of life, meaning a low OHRQoL. Conversely, if a low score indicates dental and oral health less impact on the quality of life, it means that OHRQoL is high [18].

Data Analysis

Data were processed using the Statistical Package for Social Science/SPSS software system version 25.0. the type of data used is primary data.

Ethics Aspect

Permission was obtained from Faculty of Dentistry, Ethics and Research Advisory Committee, Hasanuddin University. Informed consent was obtained from all the subjects.

Results

Table 1 shows a descriptive description of the sociodemographic characteristics of the study sample used for children in the 6-12 year age group. The number of samples is 123 people. Based on sex, there were more 65 male samples. Based on ethnicity and religion, most people are Bugis tribes with 90 people, and Islam with 123 people.

Table 2 Distribution of mean OHI-S values based on age and sex of the highest stunting children at 6-7 years old (2.03 ± 0.74). Based on sex the mean value of OHI-S was higher in males (1.83 ± 0.81).

Based on Table 3, the distribution of dental and oral hygiene status of the OHI-S index of stunting children based on age and sex. The results of the clinical examination on oral and dental hygiene status showed that the most oral and dental hygiene status in the

Table 1. Distribution of study samples based on sociodemographic factors, infectious diseases, birth weight, immunization status, and exclusive breastfeeding (n = 123).

Variables	Characteristics	n	%	Total
Age (years)	6-7	33	26.8	123
	8-10	70	56.9	
	11-12	20	16.3	
Gender	Male	65	52.8	123
	Female	58	47.2	
Ethnics	Bugis	90	73.2	123
	Makassar	12	9.8	
	Toraja	4	3.3	
	Mandar	0	0	
	Lain-lain	17	13.8	
Religion	Islam	123	100	123
Education of family head	No school	4	3.3	123
	Graduated from elementary school	23	18.7	
	Graduated from middle school	27	22	
	Graduated from high school	54	43.9	
	College/Diploma	15	12.2	
Occupation of family head	Does not work	9	7.3	123
	Farmers	72	58.5	
	Labor/Handyman	3	2.4	
	Entrepreneurs/Traders	20	16.3	
	Private employees	3	2.4	
	Government employees	7	5.7	
	Etc.	9	7.3	
Earnings per month	Rp 0-Rp 150.000	32	26	123
	Rp 150.000-Rp 500.000	31	25.2	
	Rp 500.000-Rp 1.000.000	29	23.6	
	Rp 1.000.000-Rp 2.000.000	17	13.8	
	>Rp 2.000.000	14	11.4	
Distance from home to RS./Puskesmas/Dentist's practice	0-5 km	101	82.1	123
	6-10 km	10	8.1	
	>10 km	12	9.8	
Infectious disease	Pain	105	85.4	123
	Painless	18	14.6	
Birth weight	Normal	95	77.2	123
	BBLR	28	22.8	
Immunization status	Complete	77	62.6	123
	Incomplete	46	37.4	
Exclusive breastfeeding	Exclusive breastfeeding	103	83.7	123
	No exclusive breastfeeding	20	16.3	

Table 2. Distribution of OHI-S mean values by age and sex of stunting children in Enrekang Regency.

Variables	n	DI-S (Mean ± SD)	CI-S (Mean ± SD)	OHI-S (Mean ± SD)
Age (years)				
7-Jun	33	1.22 ± 0.44	0.82 ± 0.37	2.03 ± 0.74
10-Aug	70	1.09 ± 0.52	0.64 ± 0.41	1.72 ± 0.79
12-Nov	20	0.81 ± 0.39	0.68 ± 0.35	1.44 ± 0.68
Gender				
Male	65	1.12 ± 0.51	0.73 ± 0.41	1.83 ± 0.81
Female	58	1.03 ± 0.48	0.66 ± 0.37	1.69 ± 0.68
Total	123	1.07 ± 0.49	0.69 ± 0.39	1.76 ± 0.78

Table 3. Distribution of dental and oral hygiene status of stunted children in Enrekang Regency.

Oral hygiene status	n	%
Good	40	32.50
Moderate	77	62.60
Poor	6	4.90
Total	123	100

Table 4. Distribution of sample answers based on Child Perceptions Questionnaire 8-10 (CPQ₈₋₁₀) questions regarding the quality of life-related to the oral health of children with stunting aged 8-10 years (n = 70).

Questions of Quality of Life Dimensions	Never		Once or twice		Sometimes		Often		Everyday	
	n	%	n	%	n	%	n	%	n	%
<i>Oral symptoms</i>										
Tooth ache	13	18.6	15	21.4	33	47.1	9	12.9	0	0.0
Mouth ulcer	38	54.3	3	4.3	18	25.7	9	12.9	2	2.9
It hurts to drink	18	25.7	5	7.1	35	50.0	12	17.1	0	0.0
Food stuck	9	12.9	8	11.4	28	40.0	17	24.3	8	11.4
Bad breath	21	30.0	9	12.9	19	27.1	16	22.9	5	7.1
<i>Functional Complaints</i>										
Chew for a long time	29	41.4	12	17.1	23	32.9	6	8.6	0	0.0
It's hard to chew food	22	31.4	17	24.3	22	31.4	8	11.4	1	1.4
Chewing Problems	32	45.7	15	21.4	17	24.3	6	8.6	0	0.0
It's hard to say a word	42	60.0	7	10.0	14	20.0	3	4.3	4	5.7
Insomnia	26	37.1	11	15.7	27	38.6	6	8.6	0	0.0
<i>Emotional Complaints</i>										
Easy to get angry	19	27.1	18	25.7	24	34.3	7	10.0	2	2.9
Feel frustrated	40	57.1	5	7.1	17	24.3	7	10.0	1	1.4
Shy	31	44.3	8	11.4	22	31.4	9	12.9	0	0.0
Not confident in friends	31	44.3	8	11.4	18	25.7	12	17.1	1	1.4
Complaint of appearance	39	55.7	6	8.6	10	14.3	11	15.7	4	5.7
<i>Social Limitations</i>										
Not attending school	41	58.6	12	17.1	15	21.4	2	2.9	0	0.0
Difficult to pay attention to lessons	35	50.0	7	10.0	25	35.7	3	4.3	0	0.0
Disturbed doing homework	36	51.4	5	7.1	24	34.3	5	7.1	0	0.0
Lazy to talk at school	34	48.6	8	11.4	13	18.6	15	21.4	0	0.0
Lazy to laugh	37	52.9	9	12.9	15	21.4	9	12.9	0	0.0
Avoid talking	37	52.9	16	22.9	12	17.1	5	7.1	0	0.0
Stay away from friends	44	62.9	7	10.0	10	14.3	8	11.4	1	1.4
Lazy to play	42	60.0	6	8.6	19	27.1	3	4.3	0	0.0
Mocked by a friend	49	70.0	4	5.7	12	17.1	5	7.1	0	0.0
Asked by a friend	34	48.6	6	8.6	25	35.7	4	5.7	1	1.4

Table 5. Distribution of sample answers based on Child Perceptions Questionnaire 11-14 (CPQ₁₁₋₁₄) questions regarding the quality of life related to the oral health of children with new stunting aged 11-12 years. (n = 20)

Questions of Quality of Life Dimensions	Never		Once or twice		Sometimes		Often		Everyday	
	n	%	n	%	n	%	n	%	n	%
<i>Oral symptoms</i>										
Pain in the teeth, lips, jaw or mouth	1	5.0	8	40.0	6	30.0	5	25.0	0	0.0
Bleeding gums	11	55.0	2	10.0	7	35.0	0	0.0	0	0.0
Mouth ulcer	7	35.0	2	10.0	8	40.0	3	15.0	0	0.0
Hard to breathe	12	60.0	0	0.0	2	10.0	4	20.0	2	10.0
Food on/between teeth	0	0.0	4	20.0	5	25.0	6	30.0	5	25.0
Food stuck in the bottom of the mouth	9	45.0	3	15.0	3	15.0	5	25.0	0	0.0
<i>Functional Complaints</i>										
Mouth breathing	11	55.0	2	10.0	3	15.0	4	20.0	0	0.0
Longer than others when eating	10	50.0	2	10.0	5	25.0	3	15.0	0	0.0
Hard to sleep	9	45.0	3	15.0	4	20.0	4	20.0	0	0.0
It's hard to bite or chew food like apples, corn or meat	8	40.0	4	20.0	6	30.0	2	10.0	0	0.0
Difficult to open your mouth wide	9	45.0	1	5.0	3	15.0	7	35.0	0	0.0
Difficult to say a few words	11	55.0	2	10.0	5	25.0	2	10.0	0	0.0
It's hard to eat food	8	40.0	4	20.0	6	30.0	2	10.0	0	0.0
It's hard to drink with a straw	12	60.0	2	10.0	1	5.0	5	25.0	0	0.0
Difficult to drink/eat hot or cold food	9	45.0	1	5.0	7	35.0	3	15.0	0	0.0
<i>Emotional Complaints</i>										
Disturbed/frustrated	11	55.0	2	10.0	2	10.0	1	5.0	4	20.0
Feeling insecure	13	65.0	1	5.0	3	15.0	2	10.0	1	5.0
Shy	11	55.0	2	10.0	3	15.0	1	5.0	3	15.0
Thinking about other people's words	13	65.0	4	20.0	3	15.0	0	0.0	0	0.0
Worry is less attractive than others	11	55.0	3	15.0	3	15.0	2	10.0	1	5.0
Angry	7	35.0	3	15.0	6	30.0	4	20.0	0	0.0
Nervous or scared	11	55.0	2	10.0	7	35.0	0	0.0	0	0.0
Worried less healthy than others	11	55.0	0	0.0	8	40.0	1	5.0	0	0.0
Worry is different from other people	8	40.0	4	20.0	6	30.0	2	10.0	0	0.0
<i>Social Limitations</i>										
Skipped school because of illness	16	80.0	4	20.0	0	0.0	0	0.0	0	0.0
Difficult to pay attention in school	9	45.0	6	30.0	0	0.0	5	25.0	0	0.0
Difficult to do the task	9	45.0	7	35.0	2	10.0	2	10.0	0	0.0
Do not want to talk/read aloud in class	10	50.0	7	35.0	3	15.0	0	0.0	0	0.0
Do not want to participate in sports and club activities	12	60.0	0	0.0	8	40.0	0	0.0	0	0.0
Do not want to talk to other children	14	70.0	1	5.0	5	25.0	0	0.0	0	0.0
Refuse to smile/laugh when around other children	11	55.0	4	20.0	5	25.0	0	0.0	0	0.0
It's hard to play wind instruments	13	65.0	2	10.0	2	10.0	3	15.0	0	0.0
Do not want to spend time with other children	15	75.0	2	10.0	3	15.0	0	0.0	0	0.0
Arguing with other children or family	13	65.0	5	25.0	2	10.0	0	0.0	0	0.0
Being bullied by other children	11	55.0	1	5.0	5	25.0	3	15.0	0	0.0
Shunned other children	17	85.0	0	0.0	0	0.0	3	15.0	0	0.0
Asked questions about your teeth, lips, jaw or lips by another child	9	45.0	0	0.0	10	50.0	1	5.0	0	0.0

medium category were 77 children (62.60%).

In this examination, only children aged 8-12 years were given CPQ questionnaires, but children aged 6-7 years were not given CPQ questionnaires because CPQ6-7 questionnaires were not developed so far.

Samples of 8-10 years old as many as 70 people were given a CPQ8-10 questionnaire to assess the oral health related quality of life. In the dimension of oral symptoms, the most frequently complained of children is food stuck to the teeth of 17 children (24.3%). In the functional complaint dimension, the child most often feels that it is difficult to chew food as many as 8 children (11.4%). In the dimension of emotional complaints the most frequently complained of children is a lack of confidence in friends

as many as 12 children (17.1%). In the dimension of social limitations, the complaint most often felt by children is lazy to talk in school by 15 children (21.4%).

Samples aged 11-12 years as many as 20 people were given a CPQ₁₁₋₁₄ questionnaire to assess the oral health related quality of life. In the dimension of oral symptoms the most frequently complained of children is food in/between teeth as many as 6 children (30%). In the functional limitation dimension, the complaint most often felt by children is that it is difficult to open a wide mouth as many as 7 children (35%). In the dimensions of emotional complaints that most often complained of children are angry because of the influence of teeth and mouth as many as 4 children (20%). On the social limitation dimension, the complaint most often felt by children is that it is difficult to pay attention in schools as many

as 5 children (25%).

Discussion

Research on the description of oral hygiene and quality of life-related to dental and oral health in children with stunting in Enrekang Regency. From the results of the study, 123 samples were obtained.

Based on Table 1 out of a total of 123 samples found in three sub-districts in Enrekang, namely kec. Baraka, Kec. Malua, Kec. Buntu Batu found the highest number of stunting found in Kec. Baraka. Table 2 shows a descriptive description of sociodemographic characteristics based on the age sample of 6-12 years. The number of samples is 123. Based on gender, there are more male samples, as many as 65 people, based on ethnicity and religion, most of which are Bugis as many as 90 people, and Islam as many as 123 people.

Table 3 presents data on clinical examination results in the study sample. Based on age, the highest OHIS is at the age of 6-7 years. Based on sex, the average OHIS values were higher in males. Based on Table 4 presents data on the results of the clinical examination of oral and dental hygiene status based on the OHI-S index obtained the most oral and dental hygiene status in the medium category of 80 children. This is similar to previous research in Manado caused by the attitudes and behavior of girls who are more likely to pay attention to appearance compared to boys, while the value of knowledge from boys is almost the same as women, so the high level of children's knowledge about dental health affects hygiene teeth and mouth is supported by the attitude and behavior of the child. It can also be influenced by the knowledge and attention of parents by teaching and supervising a child's daily life in maintaining oral hygiene [19-21].

Child Perceptions Questionnaires (CPQ) were used in this study to assess the quality of life of children with stunting aged 8-10 and 10-14 years. CPQ is a self-reported questionnaire. Many studies have shown that children's reports about health-related quality of life are valid and reliable. There was no assessment of the quality of life at age 6-7 in this study, because CPQ_{6,7} has not yet been developed [18].

Based on table 5 distribution of answers to quality of life questions related to oral health samples aged 8-10 years as many as 70 people were given a CPQ_{8,10} questionnaire to assess the quality of life-related to oral health. On the dimensions of oral symptoms the most frequently complained of children is food stuck to the teeth, on the dimensions of functional complaints that most often children feel is difficult to chew food, on the dimensions of emotional complaints that most often complained of children is lack of confidence in friends, on the dimension of social limitations complaints the most often felt by children is lazy to talk at school. This is the same as research conducted in Brazil, the percentage of functional limitations most frequently experienced by respondents is a difficulty when eating. Caries can cause food easily stuck in cavities, causing discomfort and pain, which can cause chewing disorders and decreased appetite [22, 23].

In 8-10 years the child can already understand the nature or condition about himself and is also able to assess themselves which

are shown in the form of emotions. Emotions that are commonly experienced at this stage of development are anger, fear, jealousy, curiosity and pleasure or happiness. Emotion is a dominant factor that influences a child's behavior. Children are often not able to hold emotions, children's emotions tend to appear and even excessive. This may be the cause of the emotional dimension most often experienced and cause interference with children [24].

Based on table 6 shows the distribution of answers to quality of life questions related to oral health samples aged 11-12 years as many as 20 people were given a CPQ₁₁₋₁₄ questionnaire to assess the quality of life-related to oral health. In the dimension of oral symptoms, the most frequently complained of children is food in/between teeth, in the dimensions of functional limitations the most frequent complaints of children feel is difficult to open wide mouth. on the dimensions of emotional complaints that most often complained of children are angry because of the influence of teeth and mouth, on the dimension of social limitations the complaints that are most often felt by children are Difficult to pay attention to in school. The results of this study are higher than previous studies in children in Brazil, which are a pain in the teeth, lips, and jaw, difficult to drink hot or cold drinks [25].

Based on the dimensions of the condition of oral symptoms, functional complaints, emotional, and social limitations children who have never felt the complaint has the highest percentage. This is likely because children with a good quality of life have more numbers than children who have a poor quality of life. Previous studies have been carried out in Spain, the samples studied were children aged 6, 12 and 15 years and are residents of developed countries. The results of this study indicate that the sample distribution regarding the quality of life is relatively low. This can happen because most likely the sample already has good knowledge and practice the importance of maintaining oral health [26].

Conclusion

Based on the results of the research that has been done it can be concluded that children who experience stunting in Enrekang District have moderate oral hygiene status and based on the dimensions of quality of life, stunting children have the most complaints on the dimensions of oral symptoms.

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